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NUMBER 1

CORONARY OCCLUSION BEFORE THE AGE OF FORTY

Report of 23 Cases

JOHN G. SMITH, M.D.

ROCKY MOUNT

The death of a 10 year old child from coronary sclerosis⁽¹⁾, or the occurrence of acute coronary thrombosis in childhood or infancy⁽²⁾, is apt to be regarded as a freak, and the case becomes a collector's item in the literature. Most of us feel that the "coronary age" is between 50 and 75 years, with the peak at about 70⁽³⁾. Few of us realize that "probably 5 per cent of the first attacks of acute coronary thrombosis occur before the age of 40."⁽²⁾

In an intensive search of the literature, Yater and associates⁽⁴⁾ found 78 references concerning a total of 744 patients less than 40 years of age with coronary artery disease, with or without myocardial infarction. To these they added a remarkable collection of 866 patients, 18 to 39 years of age (450 autopsies), taken from Army and Veteran Administration records.

World War II presented a rare opportunity for a study of heart disease in young men, but it must be remembered that many from this group were subjected to stresses unusual and apart from civilian life. It appeared worth while, therefore, to examine the records for cases involving young people in the ordinary walks of life.

Material

For this study, a review was made of over 10,000 electrocardiograms from incases and outcases of a 110 bed hospital connected with group practice. Only patients below the age of 40, having electrocardiograms clearly diagnostic of myocardial infarction, were se-

lected. Rigid criteria, following in general the specifications outlined by Myers and associates⁽⁵⁾, were used, the limitations being those common to the day, in our advancing knowledge of electrocardiography.

Twenty-three cases were found to be acceptable for this study, and follow-up personal interviews and examinations were made by the author in 90 per cent of the survivors. Notations from each case were charted under 105 clinical headings representing the items generally given attention in the literature. Only a summary of the most pertinent facts, and their correlation with the literature will be discussed.

Analysis of the Patients

Age, sex, and race distribution

The youngest patient in this group was 25 years of age, and there was one each aged 26 and 29 years, with frequency increasing to the age of 39 (table 1). Eighty-seven per cent of the patients were males, and 13 per cent were females, which is in near accord with the cases reviewed by Yater and associates⁽⁴⁾, of whom 95 per cent were males. Thirteen per cent of the present group were Negroes, the literature showing a range of 0.63 per cent⁽⁶⁾ to 50 per cent⁽⁷⁾. In the area served by our hospital from which these cases were drawn, the population is approximately 49 per cent Negro. (Occurrence of the acute attack was equally distributed over the four seasons of the year.)

Economic and cultural status

In this study, 56 per cent of the total group were in the upper social strata; 27 per cent attended college, and 69 per cent had education of high school level or higher. Occupa-

Read before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Pinehurst, May 9, 1951.

From the Boice-Willis Clinic and Park View Hospital, Rocky Mount, North Carolina.

Table 1
Age Distribution in 23 Cases of Coronary
Occlusion Below the Age of Forty

Age	No. Cases
25	1
26	1
27	0
28	0
29	2
Total for 5-year period.....	4
30	0
31	1
32	4
33	2
34	2
Total for 5-year period.....	9
35	2
36	2
37	2
38	3
39	1
Total for 5-year period.....	10
Total	23

tion over the 10 year period anteceding the acute attack showed distribution in keeping with that of the local young population at large. Interestingly — and happily — among the longest survivors was an intensely active and conscientious general practitioner; and the only case of sudden death during the acute illness was a WPA inspector (which certainly in this single instance dissociates situational stress from the etiologic factors of survival).

Weight and habits

In a comparison of the young with the old age groups, Glendy, Levine, and White⁽⁸⁾ found 70 per cent of the younger group overweight, whereas the study of Yater and associates⁽⁹⁾ showed a tendency toward overweight with advancing years. Of the present group, 67 per cent were overweight, about one-third were over 20 per cent overweight, one-third were 10 per cent overweight, and one-third normal or under normal weight; 2 were asthenic, and 4 pyknic.

Twenty-seven per cent of the patients had smoked more than one pack of cigarettes daily for at least five years before their attack, 77 per cent smoked at least one pack, and only 4 per cent did not use tobacco at all. Sixty-three per cent altogether used alcohol; 40 per cent consumed one quart or more a week.

Family histories

A study of the immediate families of this

group of patients showed that in 60 per cent of the cases, one or more members of the family had hypertension; in 8 per cent, there had been sudden death; in 15 per cent, diabetes; in 38 per cent, strokes; and in 45 per cent, heart disease. Hypertension seemed to occur in these families at a younger age than usual, although in only 4 of the 20 cases did more than one member of a family have hypertension before the age of 50. None of the 21 patients had had rheumatic fever, or ever been refused insurance on a cardiovascular-renal basis.

Previous Cardiac Symptoms

Regarding the history of cardiac symptoms preceding the acute attack, Yater and associates⁽⁹⁾ have stated that in their Army group, the younger patient with coronary disease was more likely to die during his first attack without prior manifestations of cardiac disease than was the older patient. In the present study, 50 per cent of the patients had antecedent symptoms of a cardiac nature, but in only 22 per cent did these symptoms extend back more than three weeks before the acute event. Of these symptoms, pain of the coronary type was predominant. Angina had occurred in 36 per cent of the cases, palpitation in 22 per cent, and dyspnea in 9 per cent of the patients. None had ever displayed signs of cardiac failure. This is in real contrast to the older patients, in whom cardiac symptoms, especially angina, precede the acute event in one third to one half of the cases.

When all ages are considered, hypertension is generally found in one half to two thirds of the patients at the time of their first clinical attack of coronary occlusion⁽²⁾; its association is greater with advancing years. In the present study, however, only 35 per cent of the men had prior existent hypertension, with systolic pressures above 150 mm. of mercury, and diastolic pressures above 90 mm. of mercury. Two of the three females had diastolic hypertension, one of whom also had diabetes, while the other had had severe pre-eclampsia gravidarum 15 months earlier. The latter was the only patient showing hypertensive changes of the ocular fundi.

Although there was no evidence of myxedema, xanthomatosis, or nephritis, abnormally high serum cholesterol values were obtained in 24 per cent of the 12 patients on

whom this test was made. Blood serology was negative in all of the 23 patients so examined.

Precipitating Factors

The patient's activity at the time of the acute attack is perhaps the most important feature of the study. What shall we advise our young dynamos whose family histories are set against them, who are early hypertensives, and who want to play as hard as they work? Are we safe in letting them push a lawnmower or put on overalls to build a summer cottage? Our answers vary as do our limited personal experiences. One young and able doctor I know lifts nothing heavier than his bag. Another, now over 60 years of age and one of the country's most experienced clinicians, has a complete physical examination each year and, on the strength of a good report, goes on a vacation, climbs heavy trees, and tops them with his crosscut saw.

Many contributions on this subject have been made to the literature, and opinion seems almost equally divided. Paterson⁽¹⁰⁾ has demonstrated that the formation of coronary thrombi is gradual, and may require several days before occlusion results; unusual exertion or emotion produced sudden increases in coronary blood pressure, resulting in capillary rupture and intimal hemorrhage. Boas⁽¹¹⁾ concluded that if the hemorrhage was large, occlusion might be immediate; if small or slow, the occlusion might develop slowly or be incomplete, thereby accounting for the occurrence of an acute attack immediately, or several hours or days after unusual exercise or emotion. Yater and associates⁽⁴⁾, in their study of young Army men, found twice as many attacks during strenuous activity as the proportion of time spent in such activity.

In the present study, supplementing the recorded histories with personal follow-up interviews of patients and their relatives disclosed that in 27 per cent the acute event began during rest or sleep, in 59 per cent during moderate or habitual activity, and in 14 per cent during strenuous or unusual activity.

Analysis of the patient's activities during the 24 hour period immediately preceding the acute attack, which may be yet more significant, showed excessive emotional stress in 30 per cent of the cases, unusual overeating in 40 per cent, and excessive physical fatigue in 44 per cent. Exposure, trauma,

operations, or upper respiratory tract infections were notable in none. Thus, it appears that—certainly on occasion—unusual, immoderate stresses may, especially in the presence of some degree of coronary sclerosis, precipitate coronary occlusion. However, this likelihood is rarely so great that we should interfere with the usual practices of young adults.

Symptoms of the Attack

Symptoms of the acute attack were striking only in that all members of this young group reported pain both as the initial and predominating symptom, rather sudden in onset in over half the instances, and typical in course. The locations at onset were of the usual anterior thoracic variations in all but 2, in whom the pain was epigastric. The severity, distribution, and radiation of pain were not unusual. Shock occurred in 14 per cent of the patients, one of whom died on the second day of the acute onset. Dyspnea was slight in 40 per cent but severe in only 2 patients—one of whom died. Gastrointestinal symptoms were moderate in 40 per cent of the patients, severe in 14 per cent.

The clinical course in the hospital was not significantly unusual from that of other age groups: Congestive failure occurred in only 1 patient (who died); recurrent pain was the principal manifestation, and this occurred in 45 per cent. Cardiac signs on admission were normal in all but 16 per cent of the patients, with cardiac enlargement in only one. Murmurs were present in only 11 per cent, and cyanosis was minimal and rather unusual (15 per cent). Sweating was severe in 10 per cent, and pallor in 35 per cent. The maximal range of temperature was 99 to 104 F., occurring generally on the second to the fourth day, defervescence being complete as a rule by the seventh day. Maximal pulse rates exceeded 120 in only 2 patients, one of whom died; the pulse generally became normal by the seventh to eighth day. The sedimentation time and leukocyte responses were not unusual.

Electrocardiograms

Analysis of the electrocardiograms in this young group showed myocardial infarction of the following types: anteroseptal in 22 per cent, anterior in 18 per cent, anterolateral in 4 per cent, and posterior in 56 per cent, the frequency of these locations being in keeping with that commonly reported

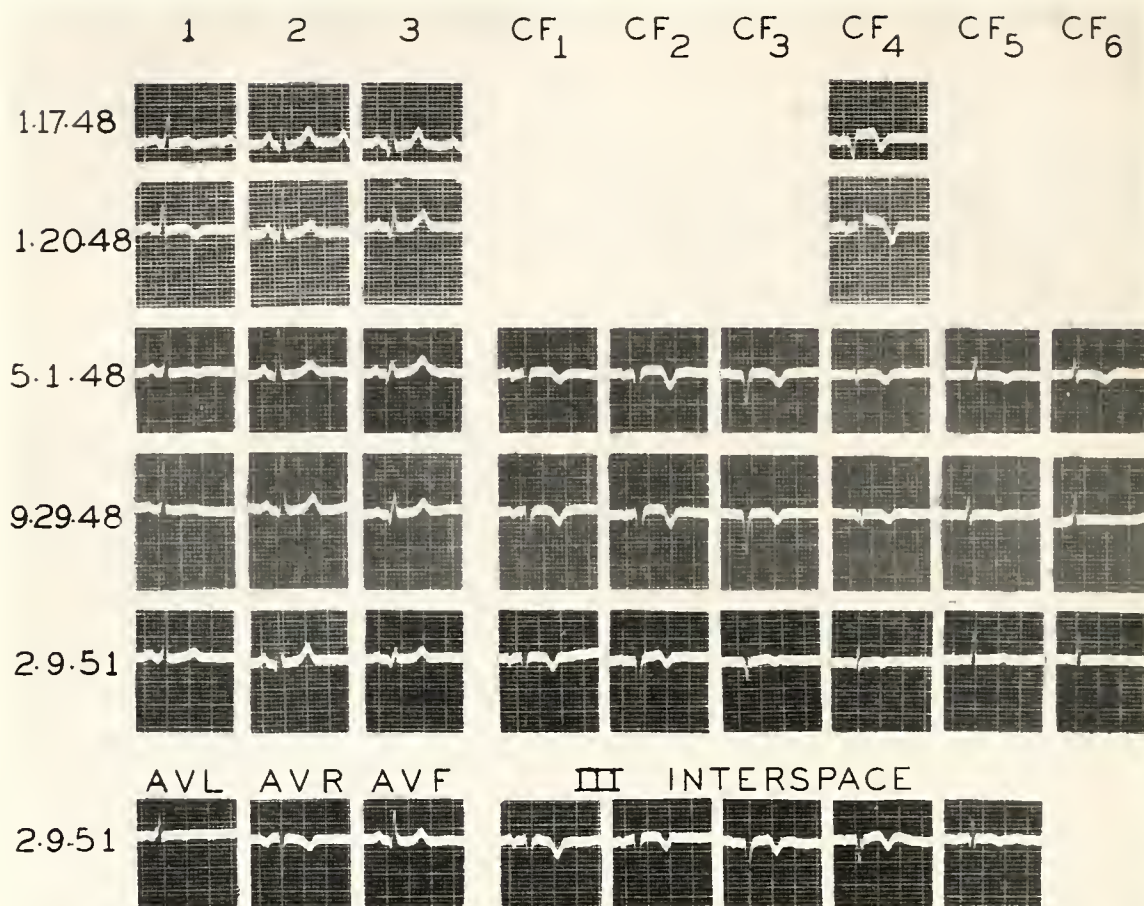


Fig. 1. Electrocardiographic series showing an acute anteroseptal myocardial infarction in the youngest patient in the group, a 25 year old white female. The acute onset occurred January 17, 1948, nine days after prolonged labor and delivery of twins. There was no evidence to justify a diagnosis of coronary embolism. Her blood pressure had always been normal, and the glucose tolerance test was normal. Her marked anemia (red blood cell count 2,050,000 and hemoglobin 42 per cent) may well have precipitated this attack, as it is now known to do in other states with exsanguination. (Gratitude is expressed to Dr. R. M. Whitley, Jr., of Rocky Mount, North Carolina, for permitting the use of some of the initial data in this case.)

for all ages⁽²⁾. Figures 1, 2, 3, and 4 show serial tracings from four patients of the group.

Duration of Illness

With regard to duration of illness, 3 of these 23 patients died, giving a mortality rate of 13 per cent for this young group. While in general mortality increases with age of the patient⁽²⁾, Yater and associates⁽⁹⁾ found that in their study of soldiers between the ages of 18 and 39 years, coronary artery disease held a more serious prognosis for men under 40 than for those in the older age groups. One wonders what effect combat and its many fears and uncertainties may have had on these figures.

Master and associates⁽¹²⁾ state that young people who recover from an acute attack sur-

vive much longer than the older recovered patients, and are more likely to be free from congestive failure and angina. Wolf-erth⁽¹³⁾ found the mortality rate lower for the relatively young group. Glendy, Levine and White⁽⁸⁾ reported the prognosis of coronary disease under the age of 40 better by two and one half years than in the average case of coronary thrombosis. McCain⁽¹⁴⁾ in 281 autopsies reported that whereas below the age of 60 the average survival was 93.6 weeks, at 60 and above the average was 57.9 weeks. Of the 3 patients in this study who died, one died on the second day of illness in acute left ventricular failure; the other 2 survived in apparently good health for approximately three years and died suddenly at home (no autopsies).

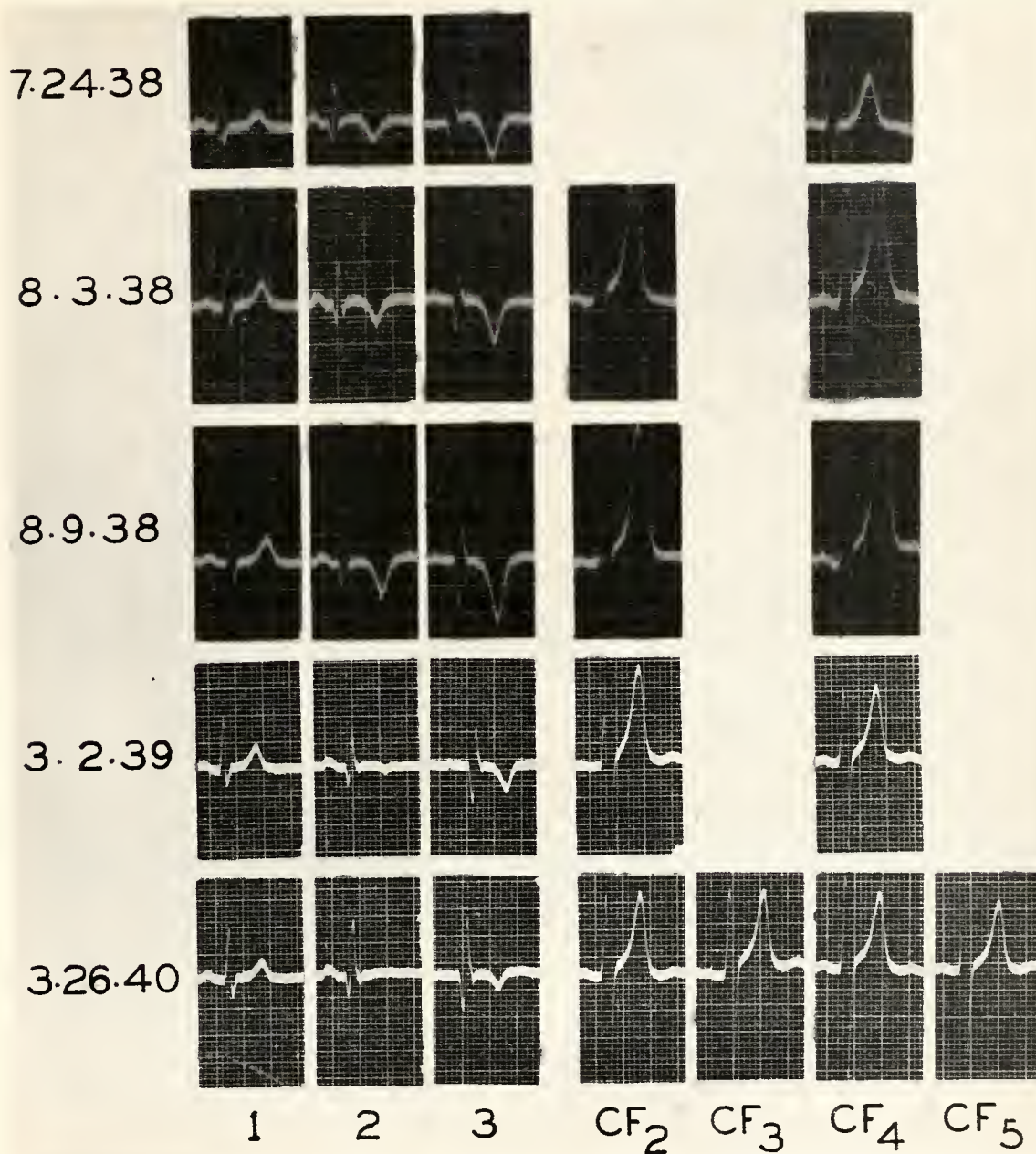


Fig. 2. Electrocardiographic tracings (the most representative of the group) in a 37 year old white male who had an acute posterior myocardial infarction on July 14, 1938. This patient has since had a recurrent posterior lesion on January 17, 1951, from which he is making a good recovery.

Follow-up Studies

Follow-up studies in general showed complete economic and social rehabilitation in 14 per cent of the patients (fig. 5); however, three fourths of the group were considered to be rehabilitated to the extent of 50 per cent or more of their former job capacity, and, more important, had maintained in general their financial and social estates,

with, in some cases, enrichment of their outlook on life. This was the next most insistent feature of the study. At the age below 40, few are able to retire. Wage-earning is held almost as dear as life. While at the age of 60 the principal consideration is survival, for the group below 40 years the pressing concern is the ability to earn a living at whatever reduced level and efficiency. It is

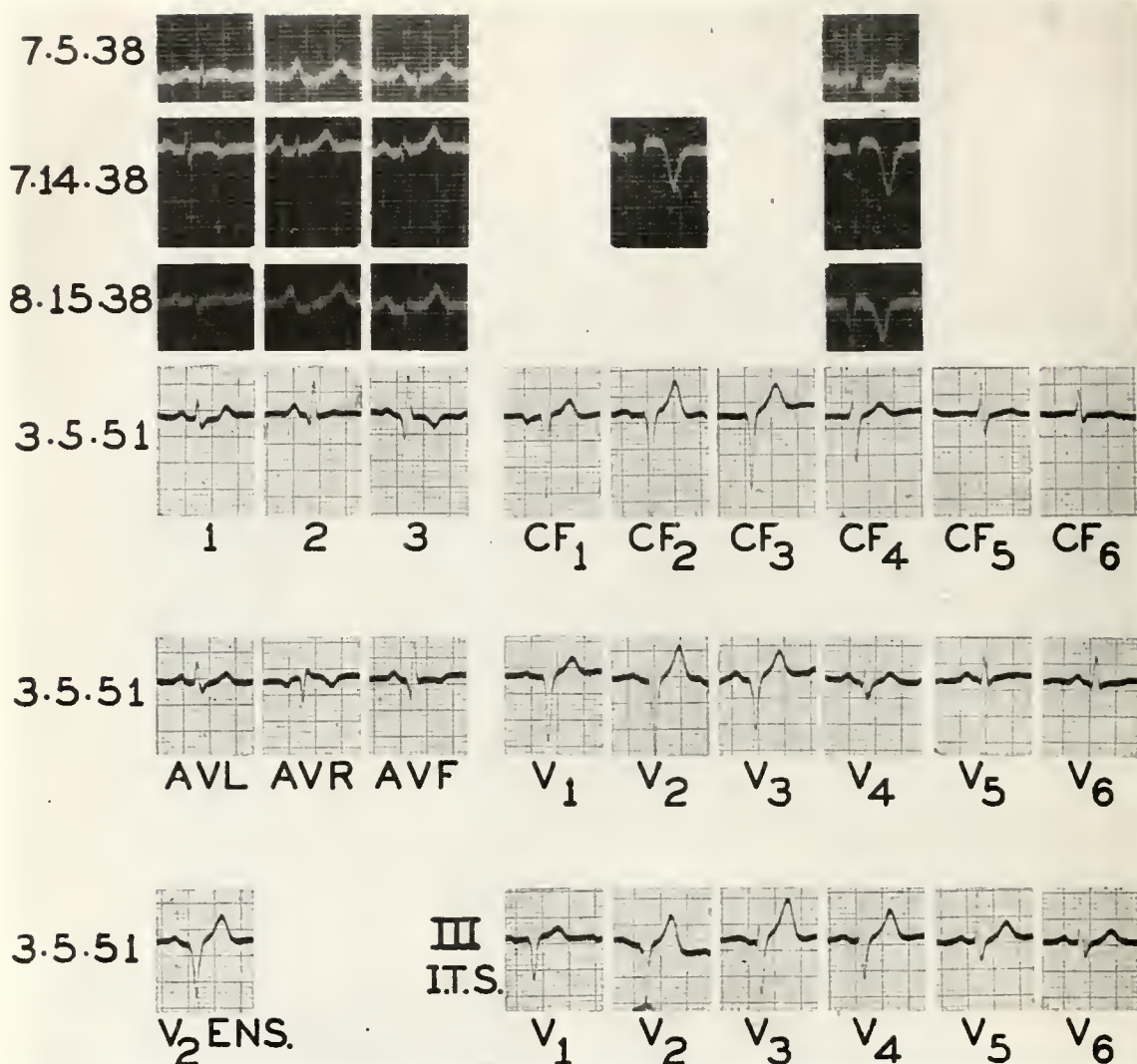


Fig. 3. This patient was a 38 year old white male, having an acute anterior myocardial infarction on July 5, 1938, uncomplicated until August, 1949, when he developed an acute posterior infarction, which was still apparent on March 5, 1951, from the more recently formed Q3, with posterior diaphragmatic wall involvement indicated by Q-AVF. Lead AVF was especially helpful here, since the heart occupied the more semivertical position, favoring transmission of negative cavity potentials through the infarcted posterior wall to the diaphragm and thence to the left leg. Q wave in AVF measured 0.04 seconds from onset to nadir, and is almost 50 per cent of the amplitude of the associated R.

a disturbing fact that rehabilitation was restricted more by the patient's or physician's apprehension than by symptoms: many patients volunteered the statement that their tolerance to activity was much greater than that allowed, but uncertainty and fear—or their doctor's warning—constrained them. Sixty-two per cent were in Functional Class I, 34 per cent in Functional Class II, and 4 per cent in Functional Class III. Angina of effort, generally mild, was present at some time following myocardial infarction in 38 per cent of the cases. In only one pa-

tient was there neurocirculatory asthenia residua, and none displayed the shoulder-hand syndrome. Recurrent infarction had occurred in 1 case by the end of two years, an additional 2 cases by the end of three years, another 2 cases at the eleventh year, and 1 case at the twelfth year, making a total of 27 per cent recurrences for the group.

In urging that we adopt a more optimistic attitude toward our patients who have recovered from myocardial infarction, Leaman⁽¹⁵⁾ has stated that we must teach our

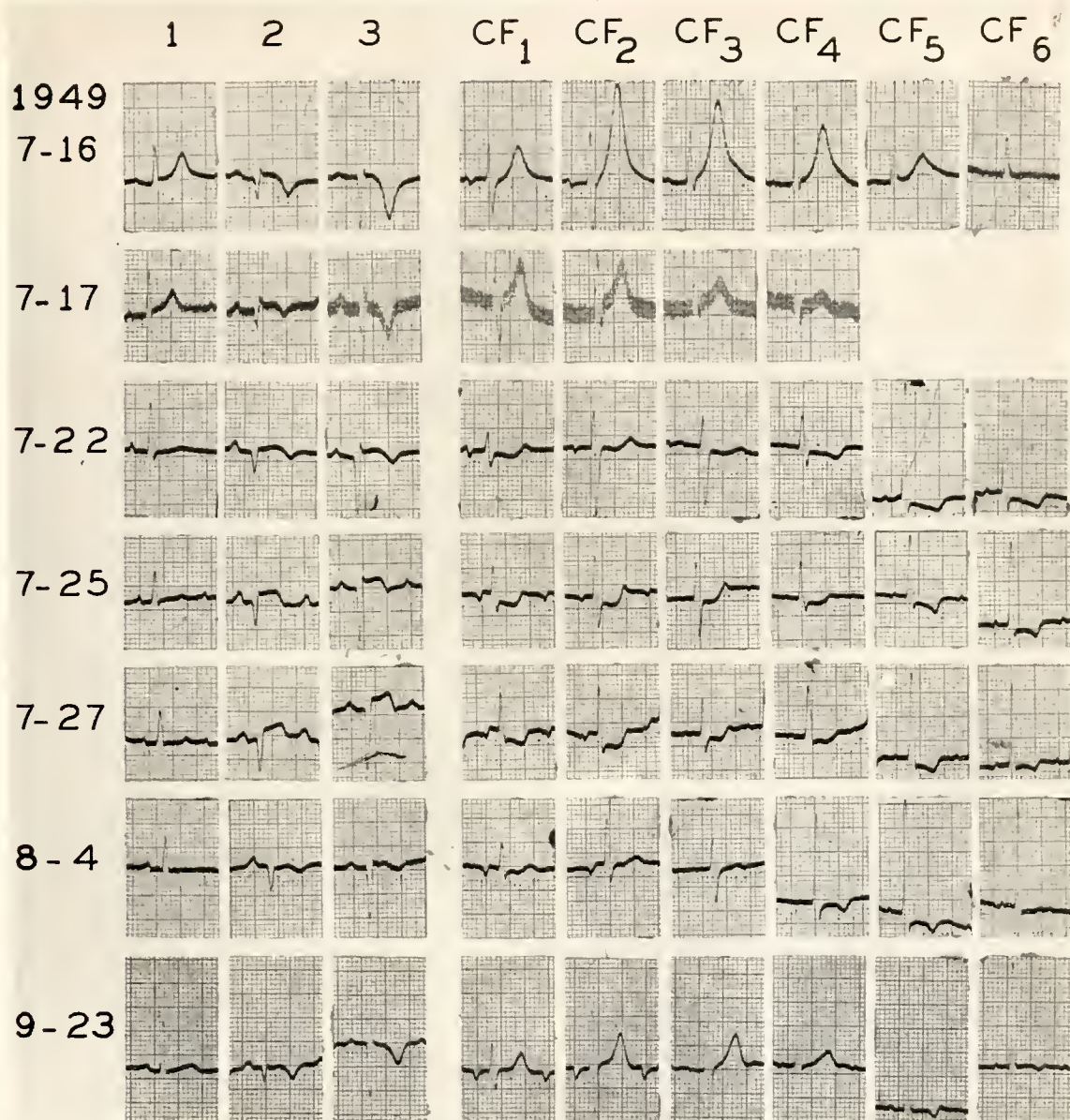


Fig. 4. Electrocardiographic series showing acute posterior wall myocardial infarction in a 34 year old Negro male. The onset of acute clinical symptoms occurred on July 13, 1949.

patients to conquer their fear of activity. By the same token we should study the capacities of our patients who have recovered from myocardial infarction, and especially in the younger age group we should loosen our restraints upon their activities to a degree suitable for their working needs, yet within the threshold of dyspnea, pain, or equivalents, being careful to distinguish the meaningless dyspnea of neurocirculatory asthenia, or precordial "neuralgia," which many of these patients may have.

Summary

In the group below 40, the overweight white male is particularly susceptible to acute coronary occlusion. Occupation, habits, and stresses do not appear as significant as heredity in favoring early occlusion.

The onset of the acute event does not give as much warning, and the crises of the attacks seem better sustained in the younger age groups. Complications are less frequent and severe, rehabilitation is more probable, and longer survival more assured.

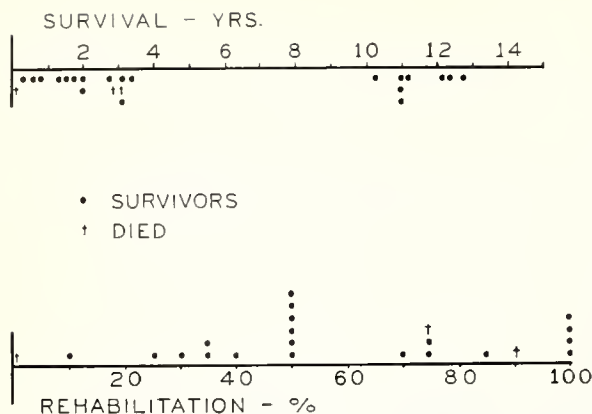


Fig. 5. The upper graph shows the length of survival in each case to March, 1951. The lower graph indicates the per cent of rehabilitation.

In women below 40 who have neither diabetes nor hypertension, coronary artery disease is unusual, but does occur.

A plea is made toward a more liberal and adaptive rehabilitation in this younger group.

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Discussion

Dr. George T. Harrell, (Winston-Salem): From the cold figures, few of us can conceive of the amount of work involved in the review of 10,000 electrocardiograms. It should be stressed that Dr. Smith has personally re-examined 90 per cent of the cases which he uncovered—a rather remarkable percentage of follow-ups for a study in clinical investigation.

Dr. Smith has stressed the etiologic factors concerned in the production of coronary occlusion before the age of 40. Approximately two thirds of the patients were overweight. Even as small an excess as 10 per cent over the standard for height and age is too much, especially in a person with a family predisposition to cardiovascular disease. The strong family history of heart disease or hypertension in these patients emphasizes the need for care in picking one's grandparents. The fact that no seasonal incidence was uncovered would seem to indicate that the factors of work or play played a relatively small part in the series. The low incidence in Negroes is significant, in view of the high percentage of Negroes in the area where the study was conducted.

The fact that 40 per cent of the patients drank one quart of whiskey per week is an interesting etiologic possibility. Alcohol is known to upset the nutrition of the body, especially the utilization of lipids. Diabetes, another disease in which lipid metabolism is upset, with an increased deposition of cholesterol in the arteries, may be a factor of more than passing interest. An unknown element is how much emotional stress, which is also known to be a strong predisposing factor to coronary artery disease, may have played in the ingestion of the alcohol.

The precipitating factors in the majority of the cases were emotion, overeating, and fatigue. All of these factors can be anticipated and prevented. Prevention is the ultimate goal of physicians in dealing with all types of disease. Where predisposing and precipitating factors can be controlled, every effort should be made to prevent the development of serious heart disease. It should be stressed that premonitory symptoms, when present, are the only warning of an impending occlusion. There are no signs in the heart, and no alterations in the blood pressure or blood cholesterol which are dependable in detecting incipient thrombosis.

Dr. Smith has made a real contribution in emphasizing the ultimate good prognosis in the majority of first attacks in this age group. The need for thorough and careful emotional rehabilitation can hardly be over stressed. By nature, these young people do not take well to restriction of activities.

Fundamentally, control of tuberculosis is through education—education of the public to prevent it and education of the patient and those near and dear to him to cure it. The medical profession, the profession as a whole, is primarily responsible for this education.—Edward W. Haynes, M.D., Calif. Med., December, 1950.

PAINS IN THE CHEST— "TRUE OR FALSE"

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BOWMAN GRAY SCHOOL
WINSTON-SALEM

Although no reliable statistics have been found to prove the point, it is probable that pain is the most common symptom which patients present to the physician. Surely, it is the most important—since the physician's first duty is to relieve pain. The dictionary definition of the word "pain" is as follows:

"Pain is a state of feeling that is the opposite of pleasure." Synonyms which have been used are: Ache, affliction, agony, anguish, discomfort, distress, misery, pang, suffering, throe, torment, torture, trouble, twinge, uneasiness, woe, or wretchedness.

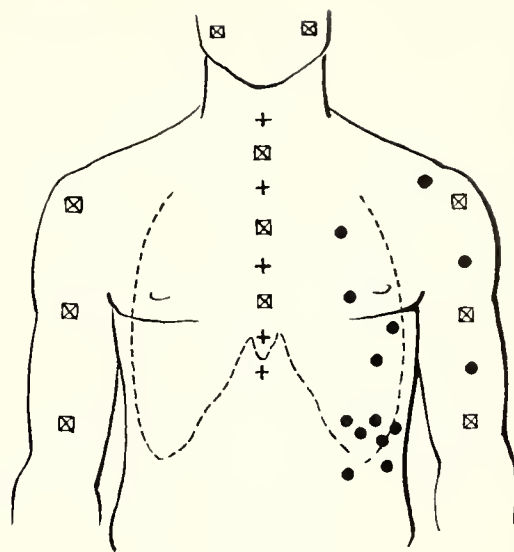
From my experience with patients who complain of pain in the chest, I would add to these synonyms "tightness, constriction, pressure, weight, hurt, pressing, bearing-down, and choking." Because of the obvious difficulties of describing and defining pains in the chest and because the individual reaction to pain is notoriously inconstant, patients' descriptions of chest pain are often confusing to the practitioner.

It is well recognized that the most common cause of pain in the chest which has any serious consequence is disease of the coronary arteries. Chest pain due to this cause will be referred to as "true." Many organic lesions and inorganic disturbances of function may also produce pains in the chest which are seldom serious but which require explanation in order that effective treatment may be rendered. In contrast to pains due to coronary artery disease, these pains will be referred to as "false."

Again the dictionary is helpful. "True" is defined as "faithful, honest, just, actual, genuine, factual, correct, to be relied upon, exact, accurate, and conformable to a rule or pattern." "False" is defined as "untruthful, dishonest, not faithful or loyal, untrue, treacherous, counterfeit, artificial, feigned, not essential or permanent, and not in tune and wrong in pitch."

Read before the Section on the General Practice of Medicine and Surgery, Medical Society of North Carolina, Pinehurst, May 8, 1951.

From the Department of Internal Medicine, Bowman Gray School of Medicine of Wake Forest College, and the North Carolina Baptist Hospital, Winston-Salem, North Carolina.



- Areas in which pain is proved to be "false."
- + Areas in which pain may be due to coronary disease but which must be further studied.
- ⊗ Areas in which pain frankly indicates coronary artery disease.

Figure 1.

True Chest Pain

Location

Studies of patients with pain in the chest have led to the observation that true pain commonly is felt in the mid-line, anywhere from the navel to the nose. The most common location, however, is beneath the sternum. The pain is often localized, but may radiate to the left arm or both arms. Substernal pain radiating only to the right arm frequently indicates coronary disease, but substernal pain radiating to both arms is almost pathognomonic of coronary disease. Such a pattern might be produced by a tumor of the upper dorsal or cervical spine or by compression of the spinal cord from fracture, bone destruction, or a displaced intervertebral disk; but these disorders are quite rare and are usually associated with demonstrable motor and sensory changes. No demonstrable sensory changes are produced by coronary artery diseases *per se*. When mid-line pain—usually substernal but occasionally epigastric—radiates to the jaws, shoulders, upper arms, forearms, elbows, or wrists, on *both* sides, painful disease of the coronary arteries is almost always the cause.

Causes

There are two types of painful coronary artery disease: (1) coronary insufficiency, which results in angina pectoris; and (2)

coronary occlusion, which usually produces myocardial infarction. These occlusions are practically always due to a thrombosis of a previously diseased coronary artery. It is true that coronary thrombosis may occur without producing myocardial infarction, and that myocardial infarction may be produced by prolonged myocardial ischemia without coronary thrombosis. The clinical and laboratory findings which differentiate these two conditions are shown in table 1.

Table 1

<i>Symptoms and Findings</i>	<i>Angina Pectoris</i>	<i>Myocardial Infarction</i>
Location of pain	Mid-line	Mid-line
Type of pain	Dull, oppressive, squeezing, aching, burning, mild	Sharp, knife-like, crushing, often remitting, severe
Radiation of pain	Shoulder, left arm, neck, often to both arms, occasionally to one or both elbows or wrists	Same
Duration of pain	Minutes	Hours
Time from onset to request for medical aid	Months	Hours or minutes
Past history of similar pain	Frequent	Rare
Relation to exercise	Produced by effort	Exaggerated but not produced by effort
Effect of rest or nitroglycerin	Commonly gives relief	No effect
Relation to overeating or emotional disturbance	Common	Rare
Nausea and vomiting	Rare	Common—"acute indigestion"
Dyspnea	Frequent but temporary	Almost constant and of long duration
Sweating	Occasionally present	Almost always present
Shock or collapse	Rarely present	Commonly present
Blood pressure	Normal or elevated	Often low, but may be increased for several hours after the attack only to drop later
Pericardial friction rub	Never present	Frequently present on second and third days
Diastolic gallop rhythm	Rarely present	Frequently present for two or three days
Pulmonary congestion	Rarely present	Commonly present
Fever	None	Almost always present on second to fifth days
Leukocytosis	None	Commonly present
Elevated sedimentation rate	None	Almost constantly present
Electrocardiographic changes	Transient, mild, fixed, or absent	Progressive in serial records—rarely absent
Reproducibility of symptoms	Always reproducible	Never reproducible

The differentiation of these two types of painful coronary artery disease is important, because patients in the angina pectoris group should always be treated as ambulatory unless their angina is severe enough to prevent any physical activity. On the other hand, patients severely ill with myocardial infarction demand bed rest, and—if possi-

ble—should be hospitalized immediately and given anticoagulant therapy. Coronary occlusion constitutes a medical emergency.

False Chest Pain

Characteristics

The importance of recognizing and treating patients with true pain in the chest is immediately apparent. It is equally important, however, that patients with false pain not be reduced to a state of invalidism. These patients also have pain in the chest, but inquiry shows that the pain is in the left side—radiating to the left axilla, beneath the left costal margin, and occasionally into the left subclavicular region, the left shoulder, and the left arm. The pains are often felt after the patient lies down at night, are not brought on by exertion, are short and sharp or dull, and intermittent, are worse when the person is nervous, are relieved by passing flatus or belching, are frequent in females without hypertension (who almost never have coronary artery disease), are not constant in location, severity, or duration, and may disappear completely for days or weeks only to return for like periods. It is significant that the patient cannot produce this type of pain by any action or maneuver. It comes on spontaneously, and almost always is worse when the patient is most nervous. This history is in contrast to the producible, measurable pain of the patient with definite angina pectoris. Treatment with antispasmodics such as belladonna or atropine and measures to combat constipation frequently relieves these patients with false chest pain. Reassurance that they have no heart disease is of the utmost importance.

Cause

Experiments with pain have been confined to human subjects, and consequently have been limited. Multiple efforts with laboratory animals have failed for the obvious reasons that animals cannot describe their feelings in words. In an effort to delineate the false type of chest pain, we have passed tubes to the splenic flexure of the colon and injected air in 12 patients known to be without coronary artery disease. The location of pain produced in these subjects is most interesting and informative. In no case was there pain in the mid-line or bilaterally, but all the patients complained of pain in the left chest, and 6 stated that the pain radiated into the left axilla and left arm. Similar re-

sults were obtained by passing air into the stomach.

Differentiation of True and False Chest Pain

Figure 1 shows diagrammatically the location of chest pain in more than 100 patients with proven coronary artery disease and more than 100 patients found to have no heart disease who were studied clinically and in some cases at autopsy as well. There were a few patients with definite coronary artery disease who felt their greatest pain in the precordial region, but in these cases substernal or bilateral pain was present also. The patients whose pain was confined to the left side of the chest were mainly below the age of 50. Almost all of them had problems of stress or discontentment. The pain was not produced by effort, and naturally was not relieved by rest. Besides being restricted to the left chest, the pain did not follow a consistent type or pattern, and did not have a definite location.

The following conditions should always be considered in the differential diagnosis of chest pain: pneumonia, pericarditis, pancreatitis, pneumothorax, hiatus hernia, pulmonary embolus, dissecting aneurysm of the aorta, mediastinal emphysema, mediastinal lymphadenitis, and trauma. These may usually be ruled out by the physical examination, history, x-ray, and electrocardiograph. Hiatus hernia has been difficult to diagnose on the basis of the history, being most frequently found in patients without symptoms and seldom demonstrated by x-ray in patients who present the so-called typical symptoms.

Conclusions

1. Mid-line chest pain with or without radiation strongly suggests myocardial infarction or angina pectoris.
2. Mid-line pain with bilateral radiation should always be considered indicative of angina pectoris or myocardial infarction.
3. Reproducibility, repetition, and constancy of the pain pattern are characteristic of angina pectoris.
4. Chest pain in women under 50 without hypertension is almost never due to coronary artery disease.
5. Unilateral left-sided pain which is not substernal is only rarely due to coronary artery disease.
6. False chest pains are not reproducible, and occur quite often at night.

7. There is no consistent pattern characteristic of false pain.

8. Evidences of an anxiety state are almost invariably present in patients with false pain.

9. False pains can usually be relieved easily by reassurance and the administration of a mild soporific and an antispasmodic such as belladonna.

10. The administration of nitroglycerin is not valid as a therapeutic test for angina pectoris, because it commonly relieves spasm in the gastrointestinal tract as readily as it relieves angina.

11. The majority of false pains are due to spasm, and to gas in the colon, stomach, or duodenum.

12. False pains are common even in patients with known coronary disease, and must be recognized and treated.

13. The correct differentiation of true and false chest pain will result in the proper therapy of those ill with coronary artery disease and will prevent the creation of innumerable cardiac neuroses.

SOME COMPARISONS OF NEURO-PSYCHIATRIC CASUALTIES IN RECENT AMERICAN WARS

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and

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DURHAM

Before we attempt to compare neuropsychiatric casualties of recent American wars, let us avail ourselves of the perspective which can be obtained by a brief consideration of the neuropsychiatric casualties of the major wars of which we have historical records.

Since the time of Alexander the Great, and perhaps even earlier, great military leaders have been interested in and concerned by what we now call neuropsychiatric casualties. Just when Alexander, the first great military genius of the ancient world, had reached the height of his power, and was virtually unopposed in his determination to conquer the world, his weary veterans,

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who had reached the limit of their endurance, mutinied and forced their young leader to turn back in acknowledgment of his first defeat⁽¹⁾. Citizen soldiers who were brought into Caesar's legions as replacements lacked the soldierly characteristics of his professional soldiers who had been indoctrinated from childhood, and had to be given higher pay and permission to loot and rape as inducements to fight. The Chinese kings and princes of the time of Confucius believed that "Good iron is not used for nails, nor are soldiers made of good men." These Chinese leaders used only the illiterate and feeble-minded who had never enjoyed any privileges, and who could be forced to fight out of fear of their leaders. Frederick the Great said, "If my soldiers began to think, not one would remain in the ranks." He also said that "since officers have to lead soldiers into great dangers, soldiers must be more afraid of their own officers than of the dangers to which they are exposed." Napoleon was perhaps the first of the great military leaders to attempt to imbue his soldiers with fighting spirit by building up morale and esprit de corps. Wellington contemporaneously was creating a system of military leadership which was uniquely successful in dealing with citizen soldiers.

Prior to the eighteenth century religious fanaticism undoubtedly was a major factor in preventing neuropsychiatric casualties. The replacement of religious fanaticism by national fanaticism—with the exception of Nazism, and the combination of religious and national fanaticism in the Japanese Army in World War II—rendered conscript armies subject to neuropsychiatric disorders. However, from the time of Napoleon through the Boer War in 1898, the communicable diseases so often decimated field armies that neuropsychiatric casualties played an insignificant part.

The Development of Military Psychiatry

The first mention of neuropsychiatric casualties in the history of war occurred in 1905 during the Russo-Japanese War. In this war, for the first time in the history of the world, mental diseases were separately cared for by specialists in nervous and mental disorders⁽²⁾.

The Russians reported 3,500 neuropsychiatric casualties during this war. The load was so great that the Russian Medical Service had to call on the Russian Red Cross for

assistance. Most of the neuropsychiatric casualties are said to have been depressive in character. Fear of the comparatively harmless gas bombs of the Japanese is said to have been the principal cause.

The United States Army first became aware of the potential seriousness of the neuropsychiatric problem when, in 1912, it was discovered that 20 per cent of the disability discharges from the peacetime United States Army were due to mental illnesses. In 1916, the hospital admission rate for mental diseases among United States troops guarding the Mexican border was three times as high as the admission rate for these disorders in the adult male population of New York State. Prior to 1917, there was a small number of medical officers in the U. S. Army who were recognized as having a knowledge of psychiatry, obtained, for the most part, during periods of service to which they were detailed at Saint Elizabeth's Hospital for the insane in Washington, D. C. However, with the exception of service at the Letterman General Hospital and at the U. S. Disciplinary Barracks at Fort Leavenworth, Kansas, these officers were not utilized as neuropsychiatrists⁽³⁾.

As reports concerning the alarmingly high incidence of neuropsychiatric casualties began to filter in from Europe, the Surgeon General became concerned, and, in March, 1917, invited a group of civilian psychiatrists to serve on a committee to help organize and develop psychiatry and neurology in the United States Army. Drs. Stewart Paton, Pearce Bailey, and Thomas Salmon composed the committee. As a result of their efforts, the division of neurology and psychiatry was organized in the Surgeon General's office on July 19, 1917. In January of 1918, the War Department created the position of Division Psychiatrist, carrying the rank of major, for every combat division. At this same time, arrangements were made to give young medical reserve corps officers coming into the Army a six-weeks training course in neuropsychiatry.

Significant Factors

Having summarized some of the historical high lights pertaining to neuropsychiatric casualties in war and the development of military neuropsychiatry, we shall now mention some of the factors which are generally recognized as influencing the incidence of neuropsychiatric casualties in land armies:

1. The employment of citizen soldiers rather than professional or mercenary soldiers has confronted military leaders with the problem of dealing with men who consciously, unconsciously, or both, have strong wishes to escape from the hazards and ordeals of combat and other unpleasant aspects of military life.

2. Effective screening of potential soldiers will, to a great extent, determine the ratio between soldiers predisposed to neuropsychiatric disorders and those who are not predisposed, but unfortunately, no really practical method of doing this has so far been devised.

3. The proper assignment of individuals in the military service according to their capacities, limitations, and predispositions would undoubtedly help prevent neuropsychiatric casualties, but this is extremely difficult and sometimes impossible to carry out in a democratic society, which has to mobilize large numbers of men in a very short period of time.

4. Public support or disapproval of the war is reflected in the attitude and behavior of the soldiers, and in their susceptibility to nervous and mental diseases.

5. The quality of civil and military leadership can have an inspiring or demoralization effect on troop morale.

6. From the standpoint of both training and equipment, the ability of troops to defend themselves and accomplish their mission, is likewise an important factor.

7. The nature of the fighting, a term which includes many and varying factors, has tremendously affected the effectiveness of the combat soldiers in all wars.

8. It was not until World War II that U. S. military leaders learned the importance of rotating troops out of front line or other hazardous duty before the prolonged strain caused them to reach the breaking point.

9. The occurrence of intercurrent diseases and injuries influences the incidence of neuropsychiatric casualties. It has long been recognized that the wounded soldier seldom shows signs of neuropsychiatric disorder while in forward hospitals. Both in World War II and in Korea, neuropsychiatric rates went down when cold injury rates went up.

10. The soldier's belief in the likelihood of success, failure, or stalemate does much to determine whether or not he will become a psychiatric casualty at that particular

time. This was especially noticeable during the trench fighting in World War I, and more recently in the mountain fighting in Italy, the hedgerow fighting in Normandy, and in Korea.

Comparison of Casualties in World Wars I and II

The unreliability of the published statistics, which is due to the many variables incident to their compilation, tends to vitiate any effort to compare specifically neuropsychiatric casualties of recent American wars. However, certain statistics seem to be relatively valid and pertinent.

Rejections

During World War I, 3,500,000 men were examined by neuropsychiatrists at mobilization centers, and 69,394 were rejected for neuropsychiatric disorders. This represents a rejection rate of approximately 11 per cent. During World War II, a little more than 15,000,000 men were examined at the induction stations, and 1,850,000 were rejected for neuropsychiatric disorders. This represents a rejection rate of approximately 12 per cent. In each of these wars, mental deficiency represented about 33 per cent of the rejections, psychoses only 1 per cent, psychoneuroses about 25 per cent, psychopathic personality 15 per cent, with other psychiatric and neurologic diseases making up the remainder.

Military hospital admissions

During World War I there were approximately 100,000 hospital admissions of neuropsychiatric patients over a period of two years and eight months. During World War II, there were approximately 1,000,000 hospital admissions of psychiatric patients over a period of three years. Taking into consideration the number of men in the Army in each of these two wars, the number of troops actually engaged in combat in each war, and the fact that in both wars neuropsychiatric disorders increased as the fighting intensified and as the period of continuous combat was prolonged, one concludes that the incidence rates in the two wars were about the same. However, Koontz⁽⁴⁾, after reviewing the same statistics, has concluded that neuropsychiatric casualties in World War II were 100 times as great as in World War I.

When we consider specific neuropsychiatric disease entities, we find that epilepsy,

gas neurosis, central nervous system lues, neurocirculatory asthenia, and hysteria were diagnosed at a higher rate in World War I than in World War II. On the other hand, the syndrome of combat fatigue and gastrointestinal neurosis were diagnosed at a higher rate during World War II.

Veterans hospital admissions

Neuropsychiatric disabilities constituted almost 50 per cent of all hospital admissions in veterans hospitals in 1927. Most of these cases were diagnosed as psychoneuroses. Following World War II, the Veterans Administration and neuropsychiatrists in private practice saw a predominance of cases of residual combat exhaustion, characterized by nervousness, startle reaction, dreams of combat, restlessness, disturbances in sexual functions, and an inability to settle down in sedentary civilian occupations.

It is interesting that many men who did not report on sick call with combat exhaustion symptoms while in the Army, became typical examples of combat exhaustion after being separated from the service. It is also interesting that many of the wounded who did not show signs of combat exhaustion while being processed through theater of operations hospitals did become typical examples of combat exhaustion after arriving at hospitals in the zone of the interior, or even after being separated from the service. This would seem to indicate that the symptoms of combat exhaustion could be held in abeyance by the soldiers until they reached their breaking point, or as long as they felt that individual pride, or pride in their unit or the Armed Forces made it expedient for them to do so. All observers report that when soldiers were sent to rest areas, when they were evacuated to the zone of the interior, or when they were separated from the service, they had a tendency to cease covering up their symptoms of combat fatigue.

Conclusion

" An old soldier got his name enrolled among the sick, though he ailed nothing, which being discovered, he confessed he was in love with a young woman and wanted to go along with her to the seaside." ". . . He lost his spirits, grew diffident of the protection of the gods, suspicious of his friends; and having given away to fears of supernatural influence his mind grew disturbed and easily alarmed. He drank all the next

day upon which he fell into delirium and died. They say Olympia poisoned him. However, many are of the opinion that all this is a mere made up story."

The above quotations are descriptions by Plutarch of a soldier in Alexander's army and of Alexander himself following his great defeat in India at the age of 33 in 323 B.C.¹⁵¹

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Abstract of Discussion

Dr. Leslie B. Hohman (Durham): I would like to emphasize one point Dr. Wilkinson made: the importance of morale both in the development and in the incidence of combat fatigue. The incidence was high on ships where the morale was poor, and low where the morale was good.

Combat fatigue is dependent on another factor that Dr. Wilkinson emphasized—the duration and severity of the combat. In prolonged combat, combat fatigue or exhaustion was almost universal. In some cases it rose to a clinical level necessitating the hospitalization or return of the soldier or sailor, while in other cases it did not.

I made a study of the veterans returning to Duke after the war. None was on the sick list, and only one or two had been discharged as neuropsychiatric casualties; but 60 per cent of all the returning students had symptoms of combat fatigue within six months after the end of combat.

The wounded also experienced combat fatigue. In the hospital in which I worked were a large number of patients with combat neuroses (1,200 under treatment at one time), a large proportion of whom had come from the medical and surgical wards. They had been hospitalized originally for wounds or physical symptoms, and transferred to the neuropsychiatric service because of combat fatigue.

Hysteria in the Navy was uncommon—I suspect for the same reason that Dr. Wilkinson pointed out in connection with the Russian troops—most of the men who had it died. A man in a hysterical convulsion aboard ship was not likely to survive.

Dr. J. W. R. Norton (Raleigh): I have been impressed by the changes in terminology and in our understanding of neuropsychiatric problems from one war to another. For instance, the "shell shock" of World War I has been superseded by the "combat exhaustion" of World War II. We now recognize the fact that there is a limit to a person's mental and emotional endurance just as there is to his physical endurance. Consequently, there is less stigma attached to the breakdowns that occur today in both civilian and military life. We change our attitudes and our definitions, but the condition is largely the same.

I would like to refer to a report made by General Hugh Morgan concerning the possibility of predicting—on the basis of physical, neurologic, and psychiatric examinations—a person's ability to stand up under combat. That brings up the point, made by Dr. Hohman, of the importance of unit spirit and morale.

You might be interested in one little incident that

I observed in Sicily. As you know, we fought our way straight through that country, under General Patton, for 37 days, without much letup from beginning to end. About a month later a considerable number of suicides occurred. At one forward dressing station, between sundown and midnight, I saw come in 67 soldiers who were shot through the left foot. The men were breaking down and giving up in one way or another. I think this condition largely explains the much publicized slapping incident.

Another incident that took place in Sicily: In carrying out orders to strike back of enemy lines, a platoon of about 60 of our men were separated from the rest of their unit. The objective had already been taken when communications went awry, and our own forces began firing on the men who had taken the objective. The firing continued for three days. I saw some of those men afterwards—about 15 or 20, as I recall, survived the ordeal—and they were as completely broken, mentally and emotionally, as any group I have ever seen.

MYXEDEMA

A Controllable Condition Which is Frequently Overlooked

GEORGE T. HARRELL, M.D.

WINSTON-SALEM

The thyroid gland, the chief regulator of the body's metabolism, determines the rate at which food is burned as fuel for the body. The thyroid hormone, apparently by acting as a catalyst for respiratory enzyme systems, regulates oxygen consumption. It is this function of the gland which has received greatest emphasis and study in the past, and which is the basis for the commonly used clinical test of thyroid efficiency—the basal metabolic rate. Possibly of equal importance is the effect of the thyroid hormone on fluid distribution. Since the thyroid affects the function of all organs of the body, uncorrected alterations in thyroid activity may produce permanent damage.

The clinical picture associated with hyperfunction of the thyroid gland is familiar. Hypofunction produces a clinical picture which is the direct opposite of this. Hypofunction—which must be contrasted with hypometabolism from other causes—may vary in degree from a simple depression of thyroid function manifested by mild symptoms

to the extreme case with all the manifestations of myxedema. Thyroid replacement therapy corrects the immediate abnormality, and if given early enough will prevent damage to the organs. It is the most satisfactory type of endocrine therapy, since it can be given orally and can be easily controlled by simple observation. However, if myxedema is allowed to go uncorrected, it may lead to secondary effects which are dangerous to life.

Etiology and Classification

Myxedema is frequently overlooked, probably because the onset is so slow and insidious. The congenital form of severe hypothyroidism—cretinism—is not too difficult to recognize, but unfortunately it is not completely correctable unless diagnosed within the first years of life. Juvenile myxedema is a metabolic defect which often begins near the time of puberty, and may be associated with abnormalities of pituitary function. Many cases of myxedema follow an infection of the thyroid gland. During the acute stage of thyroiditis the gland has a woody feel, and symptoms of thyroid hyperfunction result from the irritation produced by the inflammation. The symptoms of hyperfunction are usually followed by myxedema of increasing severity. Another common cause for hypothyroidism is operative removal of too much of the gland. Postirradiation cases following the therapeutic administration of iodine (I^{131}) are increasing in frequency and represent a new etiologic classification.

Diagnosis

Early recognition of myxedema is important, because some complications, particularly those associated with alterations of fat metabolism, are irreversible. The diagnosis is an easy one to make clinically, and is often suggested by the patient's appearance before the history is obtained. Frequent complaints are constipation and intolerance to cold. The patient may state that he requires more covers than other members of the family. Other endocrine abnormalities, particularly disturbances in menstruation, are often present.

Physical signs

The physical signs, which may be related to any system in the body, are easily recognizable if one is on the alert for the disease. The temperature is usually below normal, and the pulse is frequently slow and of poor volume. The face is puffy, and shows coarsening and thickening of the features as well

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The Na 24 used was supplied by the National Laboratory, Oak Ridge, Tennessee, on allocation from the Atomic Energy Commission.



Fig. 1. A 35 year old lumberman with unrecognized myxedema of 3 years' duration.

Left: Photograph taken June 1, 1948, before thyroid therapy.

Right: Photograph taken November 22, 1948, after therapy with 128 mg. of thyroid daily. Note the changes in the face, eyes, hands and hair, accompanied by a loss of ten pounds in weight.

as swelling of the eyes (fig. 1, left). The voice is usually low and has a hoarse, frog-like quality. The skin is cool, dry, and often scaly; the secretion of the sweat glands and sebaceous glands is diminished or absent, and the skin lacks normal resiliency and texture.

Since the growth of hair is suppressed, the hair is scanty, not only on the scalp, but on the extremities and in the axillae and pubic areas. The hair is dry, and may be fine or coarse. The eyebrows are thin, particularly at the lateral margins, and do not meet in the center; women rarely have to pluck them. Men find that they do not have to have haircuts as frequently as in the past, often going months rather than weeks. The nails are usually thin and brittle, and their growth is slowed. Patients state that the nails need cutting infrequently, and that they usually splinter or break before reaching a fashionable length.

The response of the mind is slowed, and the reaction time is prolonged. In occasional severe cases, mental abnormalities progressing even to the point of mania may occur, but these are rare. The sense of humor is usually retained, though it may take the patient longer to laugh at a joke.

The slow and diminished peripheral pulsations indicate slowing of the circulation. The heart sounds are distant and usually of poor quality, lacking the snapping muscular sound of the normal heart. The arteries in long standing cases become thickened and markedly arteriosclerotic.

It should be kept in mind that as the disease continues uncorrected, the puffiness and obvious edema may be replaced by a picture of cachexia, with loss rather than gain in weight. Serous effusions may appear in the pleural, peritoneal, or pericardial cavity⁽¹⁾.

A simple diagnostic sign which seems to be specific to myxedema is the delayed relaxation of tendon reflexes⁽²⁾. This physical sign is important, since no apparatus is necessary to elicit it, and it may be detected in any tendon with the unaided fingers. The sign has not been found in patients with edema due to other causes, nor in cases of hypometabolism resulting from other endocrine disturbances. It apparently reflects the altered distribution of fluids in the body, and is quickly reversible with treatment. In fact, it is often the first physical sign to revert, and may disappear within one day after the beginning of adequate replacement therapy. Once the sign has been felt, it is instantly recognizable.

Hormone replacement therapy is quickly followed by a reversal of the abnormal physical signs (fig. 1, right), except in long-standing cases where permanent damage has occurred.

Laboratory findings

The laboratory findings can be easily correlated with the physical signs. The oxygen consumption is usually reduced, so that the basal metabolic rate is lowered. In cases of complete myxedema, the reading is usually in the range of minus 38 to 40 per cent of normal. Lower rates may be encountered in patients with anorexia nervosa or pituitary cachexia. It should be remembered that the presence of congestive failure tends to elevate the basal metabolic rate; hence the reading obtained in patients with myxedema heart disease will be higher than anticipated.

The blood cholesterol is usually above 250 mg. per 100 cc. This elevation reflects the altered lipid metabolism, and probably is a major factor contributing to the early development of severe arteriosclerosis.

Anemia is frequent, and the hemoglobin is usually in the range of 10 Gm. Early in the course of the disease, the anemia is hypochromic in type; later it may become hyperchromic and macrocytic. The slightly yellow color of the skin, as well as the presence of papillary atrophy in the tongue, may cause the condition to be confused with pernicious anemia. In myxedema, however, the sternal

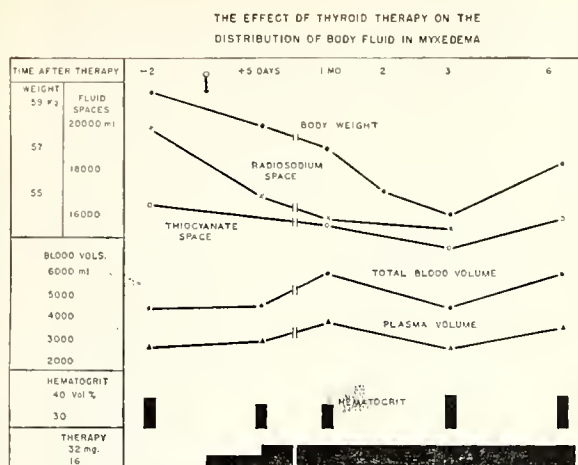


Fig. 2. Effect of thyroid therapy on the distribution of body fluids in a 49 year old housewife with unrecognized myxedema of 7 years' duration.

bone marrow will be found hypoplastic, rather than hypercellular with arrest in the maturation of erythrocytes, as is the case in pernicious anemia⁽³⁾.

Gastric analysis shows the hydrochloric acid to be reduced or absent, and gastroscopic examination reveals atrophy of the mucosa⁽⁴⁾. Doubtless the alteration in gastric function contributes to the frequent symptoms of indigestion as well as anemia. Edema and hypomotility of the gastrointestinal tract interfere with absorption, increase the anorexia, and hence contribute to cachexia and avitaminosis. The glucose tolerance test usually shows a low or flat curve, reflecting the defect in absorption. It has not been determined how much the poor absorption of glucose contributes to the alteration in lipid metabolism.

The circulation time is slowed, and values in the range of 19 seconds are often obtained when the arm-to-tongue test utilizing a solution of calcium gluconate is employed. The increase in capillary permeability may be detected in the skin by the presence of dermal fluorescence after the injection of fluorescent dye into the blood stream; it may also be detected by an increase in the amount of protein which has filtered through the choroid plexus into the spinal fluid⁽⁵⁾. Alterations in the distribution of fluid are shown also by the increase in body weight and in the space available for dilution of thiocyanate and radioactive sodium (Na^{24}) ions (fig. 2). When thyroid replacement therapy is given, fluid and sodium ions are quickly mobilized and excreted in the urine. The thiocyanate

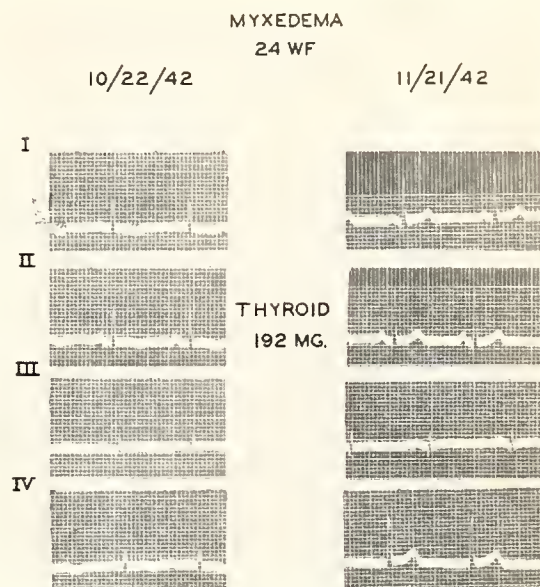


Fig. 3. Electrocardiographic changes in a 24 year old housewife with myxedema.

Left: Before thyroid therapy.

Right: After 1 month of therapy with 192 mg. of thyroid daily. Note the increase in amplitude of the PQRS complexes and the reversal of the T waves in leads 1, 2 and 4.

space may be reduced to half its baseline value in thirty hours, and loss of 3 Kg. of weight in the space of two days is not uncommon. The hematocrit is temporarily decreased and the blood volume increased as fluid is transferred from the tissues into the blood stream, but these changes revert to normal as diuresis occurs.

The fact that the total serum proteins and the albumin-globulin ratio are usually normal helps to distinguish myxedema from advanced nephritis, with which it may be readily confused. This confusion results from the presence of edema pallor and from the depression of renal function which usually occurs in myxedema. The slight albuminuria and the high blood cholesterol are other findings suggestive of the nephrotic syndrome.

Alterations in cerebral utilization of oxygen and glucose have been reported⁽⁶⁾. These alterations, which are reflected in the electroencephalogram, probably account for the mental changes associated with the disease. The alterations in the circulation are reflected in the electrocardiogram by a decrease in the amplitude of the waves. This change is quickly reversible by treatment, however (fig. 3). If myxedema has been present for several years, changes compatible with coronary

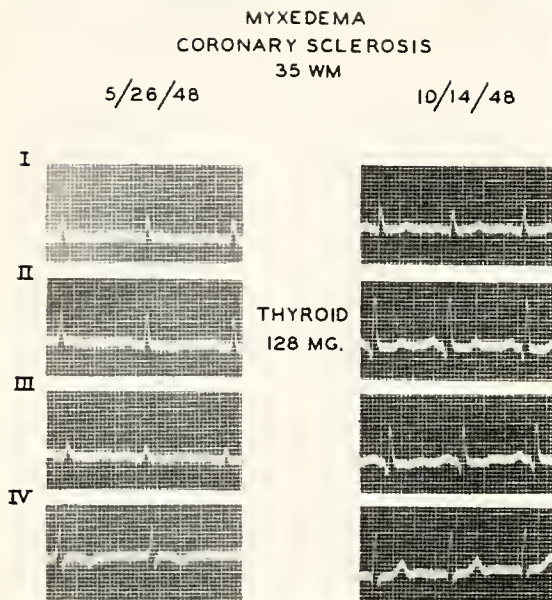


Fig. 4. Electrocardiographic changes in the 35 year old lumberman whose photographs are shown in fig. 1.

Left: Before thyroid therapy.

Right: After 5 months of therapy with 128 mg. of thyroid daily. Note the development of deep Q waves in leads 2 and 3, with smaller ones in leads 1 and 4; an S wave has appeared in lead 4. Though the T wave in lead 1 is higher and in leads 2 and 4 now upright, the T wave in lead 3 is diphasic. The Q wave changes, suggestive of reduced coronary blood flow to the posterior portion of the left ventricle, were associated with angina on effort. A change in thyroid dosage to 64 mg. daily was accompanied by a reduction in the extent of the angina and of the electrocardiographic alterations.

sclerosis may appear after treatment with thyroid extract (fig. 4).

The electrocardiogram may be very difficult to interpret when underlying heart disease is present in patients with myxedema. Figure 5 shows the electrocardiogram of a patient with chronic rheumatic heart disease in whom unrecognized myxedema developed following a complete thyroidectomy for a nodular goiter. She was admitted to the North Carolina Baptist Hospital with intractable congestive failure which did not respond to the administration of digitalis or restriction of salt. The presence of myxedema heart disease was recognized, and treatment with thyroid was started. This corrected the myxedema heart disease, but brought out symptoms of angina. Thus it was found that this patient was suffering from three different types of heart disease—rheumatic, myxedematous, and coronary. Careful regulation of therapy has enabled her

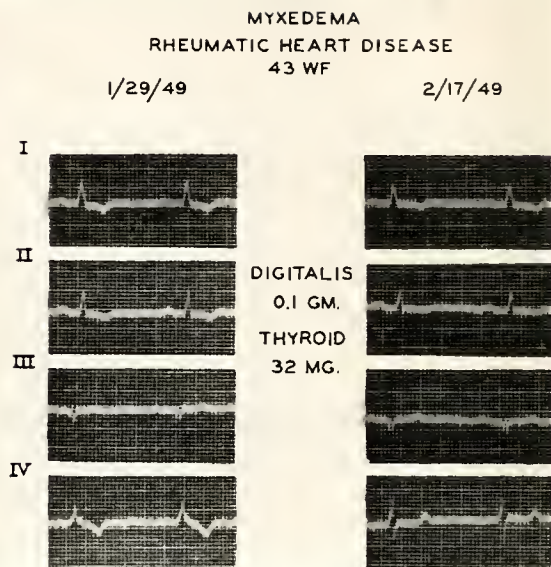


Fig. 5. Electrocardiographic changes in a 43 year old housewife with myxedema untreated for 1 year. The patient had rheumatic heart disease of 19 years' duration. A complete thyroidectomy was performed 10 years before admission and the patient had been on thyroid therapy for the next 9 years.

Left: Before thyroid therapy after complete digitalization was ineffective in controlling congestive failure.

Right: After 1 month of therapy with 32 mg. of thyroid daily which induced a diuresis. Later symptoms of angina on effort developed when the dose of thyroid was increased by 32 mg. three times weekly, suggesting the presence of a third type of heart disease—coronary sclerosis. At that time in lead 4 the R wave was higher and the T wave was upright.

to return to light housework after having been completely bedridden.

Treatment

Administration of thyroid

Specific therapy consists solely in replacement of the thyroid hormone. It is not necessary to administer any other type of endocrine therapy simultaneously. Different preparations of thyroid extract vary in potency because of differences in manufacturers' methods. Since the use of a single preparation will make it easier to become familiar with the response to be expected from given doses, the physician should select one reputable product and have his druggist always use that brand. The patient should be taught to buy the same product whenever he replenishes his supply.

Nausea is so infrequent that the enteric-coated preparations need not be used. The extremely powerful purified hormone, thyroxin, is likewise unnecessary, since the response

to desiccated thyroid, though slower, is perfectly satisfactory. Because of the slow action of the drug, a single dose daily is all that is required.

Since the disease usually comes on slowly, there is rarely any necessity for speed in correcting the process. It is therefore safest to start with small doses of thyroid extract in order to avoid complications. Especially in older patients and in unrecognized cases of long standing, regardless of age, the initial dose should be small—in the range of 16 mg. ($\frac{1}{4}$ grain) daily. Even though the patient may be young, long continued myxedema may cause his biologic age to be considerably greater than his chronologic age. The need for caution is greatest in long-standing myxedema of the pituitary type, since the administration of large doses of thyroid to such patients may precipitate an adrenal crisis. In young individuals who are known to have had the disease a short time, it is safe to start with a daily dose of 32 to 64 mg.

Since the effect of the drug is cumulative over a period of two to four weeks, doses should not be changed frequently but should be increased gradually at monthly intervals. The maximum dose that should be required even for severe myxedema is 196 mg. (3 grains), and most patients will note great subjective improvement on smaller doses.

Patients should be impressed with the fact that they must continue to take the drug indefinitely, exactly as insulin must be continued in diabetes. Administration of the drug is replacement rather than curative therapy. Slightly smaller amounts may be required during the summer months, however.

It is not necessary to bring the basal metabolic rate entirely to normal. Tremendous improvement will be noted in most cases, even though the basal metabolic rate may remain between minus 10 and minus 20. If possible, however, it is desirable to restore the blood cholesterol to normal levels.

Supportive therapy

Supportive therapy in the form of supplementary vitamins may cause the signs of vitamin deficiency, particularly peripheral neuritis, papillary atrophy, cheilosis or even frank pellagra, to clear up more quickly than will diet alone. The anemia will usually respond to diet and thyroid, but a return to normal values may be speeded up by the administration of iron. The use of liver, folic

acid, or vitamin B₁₂ is rarely necessary, even in the hyperchromic, macrocytic types of anemia. Indeed, failure of such anemias to respond to hematopoietic agents is often a diagnostic aid leading to the recognition of myxedema.

The use of other drugs

When any drug except thyroid is administered to patients with myxedema, it should be started in extremely small doses and given very cautiously. These patients are extremely sensitive to certain drugs, including quinine and morphine. We have observed exaggerated responses to autonomic blocking agents such as Priscoline in doses one-third to one-fourth of those tolerated by normal individuals. Because of the tendency of bromine to replace iodine in chemical molecules, bromides should not be used for sedation in patients with myxedema. The similar ability of the thiocyanate ion to replace halides would contraindicate the use of thiocyanate in myxedematous patients who have hypertension. Since the sulfonamides are known to block enzymatic steps in the synthesis of thyroid hormones, it would be advisable to use antibiotics rather than sulfonamide drugs when an infection occurs.

The appearance of angina during treatment with thyroid reflects the increased demands of the myocardium for oxygen and the inability of the coronary artery to supply the necessary amount of blood. Though our experience is limited, we have gained the impression that in patients whose exercise tolerance is reduced after the administration of thyroid, the administration of lipotropic substances such as choline or methionine over a period of six to twelve months as an adjunct to thyroid therapy may produce clinical improvement, even though the electrocardiogram is relatively unchanged. Such therapy has not caused marked alteration in the total lipid and phospholipid fractions of the blood, however, even though the blood cholesterol may be reduced.

Conclusion

It is unfortunate that myxedema, an easily diagnosable and controllable condition, is so frequently overlooked until irreversible damage has been done. If the disease is recognized early and treatment is carefully carried out, patients with myxedema are among the most satisfying that a physician can have. Thyroid replacement therapy is effective in

restoring the patient to a happy and useful life.

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Discussion

Dr. Ernest Yount (Winston-Salem): There are few more appropriate titles than the one Dr. Harrell has chosen—"Myxedema: a Frequently Overlooked Controllable Condition." In a series of 50 patients reported not too long ago, the duration of symptoms prior to the establishment of a diagnosis of myxedema was two to six years. Along with Dr. Harrell, I would like to emphasize the diagnostic value of delayed tendon response to normal, which he has demonstrated as being pathognomonic of myxedema.

At the present time there is no value in using anything other than thyroid extract in treating patients with myxedema. With the increasing availability and improved methods of standardization of thyroxin, however, it is to be hoped that in the future this synthetic product will provide a more constant type of therapy than does the extract.

It has always irritated me to see the premature articles in newspapers and lay magazines on medical subjects. Patients come in the office daily wanting to know why this or that new treatment has not been used in their case. They have read the articles in the lay periodicals, many of them reports of experimental work still in an immature state. The physician has to use his precious time explaining that the treatment has not been sufficiently evaluated to be used by him. Nevertheless, he is often forced to use it when his better judgment tells him to hold off. I can well remember when the use of vitamin E for coronary artery disease was announced by the lay press. Many of my own patients insisted on taking the vitamin. I had to explain to each that I could promise nothing, but, since it appeared that the use of vitamin E was harmless, I reluctantly gave the prescription. It is we, the physicians, who are responsible for giving our patients their medical education, and therefore each of us must learn to explain medical matters in the simplest terms and take the time to do it.—Yater, W. M.: Keeping Abreast of Medical Progress, *Pennsylvania Medical Journal* 54:425 (May) 1951.

The ascendancy which the anterior pituitary has gained over the endocrine system may be likened to that of the cerebral cortex over the nervous system. As the cerebral cortex signals various parts of the soma over pathways of varying numbers of neurones, so does the pituitary at times send a hormone to impinge directly on an effector target . . . —Means, J. H.: The Integrative Action of the Endocrine System, *Ann. Int. Med.* 34:1314 (June) 1951.

CORTISONE AND AUREOMYCIN IN THE TREATMENT OF A CASE OF ROCKY MOUNTAIN SPOTTED FEVER

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MORGANTON

Rocky Mountain spotted fever is an acute febrile illness caused by *Rickettsia*. In its etiology and clinical course it may be difficult to distinguish from typhus fever. The disease is endemic in the western states of the Rocky Mountain area, where it is transmitted to man by the tick *Dermacentor andersoni*, and in the east and south where it is transmitted to man principally by the dog tick *Dermacentor variabilis* ⁽¹⁾.

Pathology

The basic pathology is characteristically a diffuse endangitis. The distinctive gross lesions result from thrombosis of small blood vessels⁽²⁾. Necrosis and hemorrhage of the skin, the scrotum, the lobes of the ears, and the fingertips may occur.

The rash appears from the third to the fifth day of illness. It is rose-colored, macular (the macules measuring from 1 to 5 millimeters in diameter), may become confluent in areas, and after a few days may become petechial as the result of thrombosis and hemorrhage from small blood vessels. When rose-colored, it blanches on pressure. It appears first on the wrists, ankles, and back. In milder cases, a prodromal period marked by malaise and chilly sensations may occur. The onset is usually accompanied by a chill, with elevation of temperature to 102 to 103 F., headache, and pain in the bones and muscles. Considerable restlessness with insomnia is a distressing symptom complex, and vomiting is not unusual. The fever runs from 102 to 103 F. during the first seven days, and during the second week, from 103 to 106, or even 107. After the second week the fever comes down by lysis. In fatal cases the fever goes to 106 or 107 F., the pulse rises, and coma ensues, followed by death.

The pulse rate runs from 110 to 130. The white cell count seldom exceeds 12,000. The red cell count drops to about 3,500,000; eosinophils diminish or disappear; there is an increase in monocytes. The agglutination with proteus OX¹⁹ shows a rising titer.

Unusual response to cortisone and aureomycin therapy in an apparently moribund

patient is seen in the following case report.

Case Report

The patient, a 57 year old white widow, the mother of six children, was first seen at home on May, 17, 1951. The chief complaint was headache, fever and distressing pains in her back and legs. The illness had begun on May 12, 1951, with malaise and chilly sensations, headache, anorexia, and restlessness. These symptoms had increased up to the time when she was first seen.

The family history was not contributory. The past history disclosed the usual childhood diseases. The patient had had no serious illnesses until May 5, 1947. When I saw her on this date, she had heart failure, and had been ill for two weeks. She was digitalized, and the symptoms were relieved. After four months the digitalis was discontinued, and she has had no return of symptoms. I have seen her at intervals of one to six months since then. There was no history of tick bite, although she lives in the country, and no history of immunization or vaccination.

Physical examination disclosed an acutely ill white female, appearing five years older than her stated age of 57. She was slender, poorly developed, poorly nourished, and had rather dark skin. She was restless and complained of fever, headache, and back and leg pain. The pulse was 74, and the blood pressure was 140 systolic, 80 diastolic. Significant findings were as follows: The nasal septum deviated to the left. The tongue was coated, with red edges. The apex of the heart was 4 cm. to the left of the midclavicular line. The spleen was palpable. A faint, rose-colored macular rash, which blanched on pressure, was scattered over the body, arms, and legs.

A tentative diagnosis of Rocky Mountain Spotted Fever was made, and the patient was strongly urged to enter the hospital. When this proposal was refused, she was put on Chloromycetin, 250 mg. every four hours. The patient discontinued the medication after 48 hours, because of nausea which she attributed to the drug.

The symptoms previously described became progressively worse, with the addition of diarrhea on May 20, 1951. Little fluid was taken, and no food. Restlessness was acute, and delirium ensued May 21.

She was finally brought to the hospital by ambulance at 12:30 the following morning—restless, mentally confused, and very

drowsy. The physical examination at this time showed only the following changes: the pulse was 80, blood pressure 145 systolic and 90 diastolic, respiration 28, and mouth and skin were dry. There was a suggestion of stiffness of the neck on flexion of the head. The rash was unchanged.

Laboratory data: Blood studies showed a hemoglobin of 13.8 Gm., a red cell count of 4,700,000, and a white cell count of 10,000, with 96 per cent polymorphonuclears and 4 per cent lymphocytes. The urine was acid, clear, and amber, with a specific gravity of 1.015. Tests for albumin, sugar, and acetone were negative. There were a few epithelial cells, and white blood cells were rare. Cultures of the blood and urine were reported negative for growths. Studies of the spinal fluid showed 4 white cells, including 1 polymorphonuclear and 3 lymphocytes. The Kline test was negative. Agglutination tests were negative, with the exception of proteus OX¹⁹. Blood drawn for this test on May 22, 1951 was positive in a titer of 1:80. On May 24 the titer was 1:160, on May 29 it was 1:160, and on September 11, 1:40. The complement fixation test for Rocky Mountain spotted fever done on September 11 was positive in a titer of 1:160.

Hospital course: The patient was given Chloromycetin, 250 mg. every four hours, and the following intravenous fluids during her hospital stay: 5,500 cc. of 5 per cent glucose, 3,000 cc. of protein hydrolysate, 1,500 cc. of 5 per cent glucose in normal saline, and 500 cc. of 10 per cent glucose.

Her course was steadily downhill. By 9 a.m. on May 23 she was comatose. Her temperature rose to 106 F., her pulse was 140, respiration 50, blood pressure 100 systolic, 80 diastolic. The clinical picture was one of impending death. By this time it was no longer possible to give anything by mouth. It was decided to give 500 mg. of aureomycin in 500 cc. of 5 per cent glucose intravenously, and 100 mg. of cortisone intramuscularly every six hours for three doses⁽³⁾. Within six hours her clinical picture was improving. Twelve hours later the intravenous administration of 500 cc. of aureomycin was repeated. It was repeated twice within the next 24 hours, then once daily for three days.

The patient's improvement was continuous. Eighteen hours after starting cortisone and aureomycin she was again able to take fluids by mouth. The temperature returned

to normal after 24 hours. Her convalescence from then on was uneventful. At the present time she shows no unfavorable results of her illness.

Comment

This case was considered to be a severe case of Rocky Mountain Spotted Fever. The patient had not received an adequate dose of Chloromycetin⁽⁴⁾. It was felt that unless an adequate dose of medication was given quickly, she would expire. Aureomycin was used, because a therapeutic blood level could be attained rapidly and could be maintained by the intravenous route in an almost moribund patient. Cortisone was decided upon, because theoretically it should decrease toxicity⁽⁵⁾. It is considered to have made a large contribution to the reduction of fever, and to have improved the clinical condition temporarily. Cortisone is not considered specific treatment for Rocky Mountain spotted fever. In this case, however, in view of the very rapid improvement in the clinical picture it would appear to have been life-saving to a moribund patient. Aureomycin would not be expected to change the clinical picture within a period of six hours.

A review of the literature shows that aureomycin, terramycin and Chloromycetin have proved about equally effective in the treatment of Rocky Mountain spotted fever, and are all superior to para-aminobenzoic acid. No case was found in which cortisone was used in rickettsial infection.

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Nursing needs have increased in spite of lower death rates, longer life expectancies, and a generally healthier population. The number of people in the United States has increased by an estimated 16,000,000 since the 1940 census. More people are now living to an older age than ever before, and consequently the diseases and disabilities of older people have multiplied. A high standard of living has prevailed since the early years of the war, medical prepayment plans have spread, and public health services have been expanded in many areas. In 1940, 10,087,000 patients were admitted to hospitals in the United States, but by 1948 the number of hospital admissions had risen to 16,422,000. *Pub. Health Reports*, August 5, 1949, Chesley Bush, M.D., Esta H. McNett, R.N., B.S., Lucile Petry, M.A., and Martha B. Naylor, R.N., B.S.

BODY POTASSIUM LOSS DURING THERAPY WITH ACTH AND CORTISONE

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and

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ACTH is a hormone produced by the pituitary gland. Its administration stimulates the adrenal cortex to produce hormones which affect diverse physiologic functions. Cortisone appears to be but one of the hormones produced by the adrenal cortex. Its systemic effects are similar to those produced by ACTH.

When cortisone is administered therapeutically, this steroid acts as a substitute for the natural hormone. Both ACTH and cortisone alter electrolyte metabolism, causing retention of sodium and excessive urinary excretion of potassium. For this reason, a low sodium diet and the administration of supplementary potassium have been employed as adjuvants to therapy with either of these drugs⁽¹⁾.

Quantitative data on this effect are based on external studies of the electrolyte balance, which are indirect measures. Such studies have indicated that the loss of potassium during therapy with ACTH and cortisone exceeds the amount of nitrogen which would be lost as a result of the destruction of tissue cells^(1a). Hence the potassium loss cannot be explained solely on this basis, and it appears, therefore, that an absolute deficit of this cation is induced. The systemic effects of potassium depletion, such as muscular weakness, respiratory difficulties, and electrocardiographic changes, are well known⁽²⁾.

The availability of the radioactive isotope of potassium, K⁴², has made possible direct measurements of the exchangeable potassium content of the body⁽³⁾. For this purpose, a tracer dose of K⁴² is injected intravenously. After sufficient time has elapsed for the tagged atoms to achieve equilibrium with the native atoms in the body, the specific activity

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K⁴² was supplied by the Oak Ridge National Laboratory, Oak Ridge, Tennessee, on allocation from the U. S. Atomic Energy Commission.

*Research fellow of the American Heart Association sponsored by the 20-30 International Rheumatic Fever Foundation.

of the urine specimens is used to calculate the exchangeable potassium content of the body⁽³⁾. By such a method, it has been found that the mean exchangeable potassium content (Ke) in 30 healthy young adult males is 46.3 milli-equivalents per kilogram, with a range of 35.6 to 57.1 milli-equivalents per kilogram⁽³⁾. In 20 normal young females, the mean value is 31.5 milli-equivalents per kilogram, with a range of 25.1 to 35.9 milli-equivalents per kilogram⁽⁴⁾.

The purpose of this report is to point out the magnitude of the depletion in body potassium which can be caused by the administration of ACTH or cortisone. Four cases studied serially by the radioisotope technique are cited.

Case Reports

Case 1

A 65 year old woman was hospitalized for treatment of mild rheumatoid arthritis of four years' duration. During the seven day period of study, she received ACTH intravenously, 20 mg. daily, and potassium chloride orally, 3 Gm. daily. Exchangeable potassium (Ke) determinations were done on the first and last days of the study. The results were as follows:

Day of Study	Weight (Kg.)	Ke (m-eq.)	Ke/Wt. (m-eq./Kg.)
1	51.1	1777	34.8
7	49.0	1266	25.8

Comments: This case reveals a striking decrease in the total body potassium (29 per cent of the initial value), despite supplementary doses of this mineral. No signs or symptoms of potassium depletion were noted.

Case 2

Seven months prior to hospitalization, this 25 year old man had a sore throat, followed in two weeks by fever and polyarthrititis. He was given cortisone, which he continued to take in varying dosages, depending upon the severity of his symptoms. Dietary sodium was not restricted, and no supplementary potassium was prescribed. Within six months the body weight increased 45 pounds. Three weeks prior to hospitalization, he noted band pigmentation of the nails.

Physical examination on admission revealed acne, "moon" facies, a "buffalo hump," and the fat distribution typical of Cushing's syndrome. The temperature was 101 F. Marked improvement in the arthritic symptoms was observed when the patient was given salicylates. Hormone therapy was stopped. No supplemental potassium was administered, but the patient was placed on a liberal diet which contained approximately 3 Gm. of potassium per day. He was hospitalized for 15 days. Two months after discharge, he was symptom-free, and the signs of cortisone intoxication had disappeared.

Day of Study	Weight (Kg.)	Ke (m-eq.)	Ke/Wt. (m-eq./Kg.)
1 (Second hospital day)	87.7	2340	26.7
6	85.4	2256	27.6
14	85.0	2966	34.9

Case 3

A 33 year old man began to have chills, fever, polyarthrititis, cardiomegaly, and anemia in February, 1951, three weeks after a streptococcal pharyngitis. While hospitalized elsewhere, he received both ACTH and cortisone. In the early part of March, 1951, he was given oral cortisone, 100 mg. daily, which he continued without sodium restriction or potassium replacement until he was admitted to the North Carolina Baptist Hospital late in August.

Physical examination revealed acne, "moon" facies, and a cervical fat pad. The blood pressure was 150 over 94. Both knee joints showed effusion. The arthritic symptoms responded promptly to salicylates and aminopyrine. Hormone therapy was discontinued, and he was given a liberal diet. No added potassium was prescribed.

Day of Study	Weight (Kg.)	Ke (m-eq.)	Ke/Wt. (m-eq./Kg.)
1 (Second hospital day)	69.6	2099	30.2
7	70.2	2302	32.8

Comment: In these two patients, marked potassium depletion was present following unregulated cortisone therapy. In neither case had it progressed to the point where clinical signs of potassium deficiency were recognizable. Following withdrawal of hormone therapy, the body promptly began to make up the deficiency from the diet.

Case 4

A male painter, aged 56, was first admitted to the North Carolina Baptist Hospital in 1948 because of exfoliative dermatitis of undetermined etiology. At that time local and supportive therapy produced a remission. He was admitted for the second time in July, 1950, in a moribund state following a recurrence. Treatment with ACTH, 40 mg. daily, produced marked improvement. Whenever the drug was temporarily withheld, evidences of recurrence appeared, and it was necessary to maintain him on ACTH during the next five months. Additional treatment included potassium chloride, 1 Gm. daily, and moderate sodium restriction. When he was discharged in December, 1950, his dermatitis was adequately controlled by cortisone, 50 mg. daily. He was told to continue his potassium supplement, and was given directions for a low sodium diet (less than 2 Gm. daily). He was seen monthly in the outpatient department, and aside from "moon" facies showed no visible sign of cortisone intoxication; no dermatologic symptoms or signs developed.

After eight months on cortisone, he was readmitted for a course of ACTH in preparation for the withdrawal of hormone therapy. During the period of study, he received ACTH intravenously on the following schedule: Day 1, 20 mg.; days 2-8, 40 mg.; days 9-14, 20 mg. During days 1-5, he also received oral cortisone, 50 mg. daily.

Ke studies were as follows:

Day of Study	Weight (Kg.)	Ke (m-eq.)	Ke/Wt. (m-eq./Kg.)
1	77.3	3127	40.5
7	79.1	3439	43.5
14	77.3	2856	36.9

Comment: In this instance, it appeared that moderate dietary sodium restriction and the administration of supplementary potas-

sium over a long period of time provided adequate substitution therapy. The increase noted in the second Ke level, followed by a decrease on the third determination, suggests suppression of adrenal cortical activity due to the administration of cortisone. This effect became evident when cortisone was withdrawn and was counteracted when the full effect of ACTH on the gland was realized.

Discussion

Although data pertaining to electrolyte metabolism during long-term therapy with ACTH or cortisone are limited, external balance studies have shown that the urinary excretion of potassium is increased. The magnitude of the depletion of body potassium in case 1, as measured by the K^{42} method, was greater than had been anticipated from previous external balance studies. A deficit of 511 milli-equivalents (29 per cent of the initial value) developed in six days, despite the administration of a total of 200 milli-equivalents of supplementary potassium. These figures illustrate the potential magnitude of the deficit which may be induced even when a patient is receiving what is assumed to be adequate replacement of potassium. Case 4 illustrates that an individual may be maintained in potassium balance during long-term therapy with ACTH or cortisone if the intake of sodium is adequately restricted (to less than 2 Gm. daily) and potassium supplements are given.

Similar studies in other subjects with potassium depletion indicate that a deficit of slightly more than 29 per cent of the normal body content may result in the sudden development of clinical symptoms and signs of potassium deficiency. The loss of body potassium of the magnitude demonstrated in these 4 cases, although not productive of symptoms, may potentially be very harmful. Alarming symptoms and signs may appear if the depletion is permitted to progress untreated.

Summary and Conclusions

Serial determinations of the exchangeable potassium content, as measured with a radioactive isotope, were performed in 4 patients during and after therapy with ACTH and cortisone. The data reveal a striking depletion in the body's store of potassium, even during replacement therapy with as much as 3 Gm. of potassium chloride daily. The results emphasize the importance of re-

placing this loss and of recognizing this potential hazard.

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THE USE OF ORAL VASOCONSTRICTORS IN RHINOLOGY

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CHARLOTTE

A congested nose, a running nose, or a combination of these constitutes an important segment of the average office practice of the otorhinologist. The successful management of these symptoms is of extreme importance medically and economically. Therefore, it is the purpose of this paper to examine some of the means by which the symptoms of nasal congestion and rhinorrhea can be successfully controlled. It seems most profitable to inquire first into the physiologic background of these symptoms, and then to discuss drugs which, when administered by the oral route, will control these symptoms.

Basic Principles

Since the challenging work of Proetz⁽¹⁾ in 1941 on the effect of drugs on the nasal mucosa and the ciliary activity, a great deal of information has been obtained concerning the normal physiology of the nose, and the reaction therein in disease and under the influence of various drugs. In my opinion, the bulk of accumulated evidence points to the following fundamental principles for the management of rhinorrhea and nasal congestion:

A nose returns to a normal physiologic state more rapidly, regardless of the path-

¹Read before the Section on Ophthalmology and Otolaryngology, Medical Society of the State of North Carolina, Pinehurst, May 8, 1951.

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ologic cause for the abnormality, if the nasal mucosa is not abused by the local application of drugs, regardless of their pH or the chemical components. It is also my opinion that ventilation of the nasal passages is the foundation on which all nasal health is built. I believe that the normal mucus sheet covering the nasal mucosa is of utmost importance in cleansing the nose as well as protecting the mucosa from contact with noxious agents including bacteria, and that, therefore, any chemical added locally to this mucus sheet is so restricted in the length of time which it acts and in the depth to which it penetrates, that such therapy is probably not justified.

The Physiologic Basis of Nasal Congestion and Rhinorrhea

With this statement of fundamental concepts, let us now turn to the facts concerning the production of nasal congestion and rhinorrhea. Some of these facts are rather new; they are all important, and therefore justify re-emphasis.

Innervation of the nasal mucosa

A significant set of experiments on the autonomic innervation of the nasal mucosa was recently reported by Millonig, Harris, and Gardner⁽²⁾. It is worth recalling that the nasal mucosa is innervated by both parasympathetic and sympathetic nerve fibers. The parasympathetic nerve fibers leave the brain stem with the facial nerve and pass through the geniculate ganglia and thence to form the greater superficial petrosal nerve, which passes to the sphenopalatine ganglia. From there, postganglionic fibers travel with the deep branch of the maxillary division of the trigeminal nerve to the nasal mucosa. Harris and his group had an opportunity to study 6 patients in whom the greater superficial petrosal nerve had been sectioned. They found that after this operation the nasal mucosa on the side of the nose that had been denervated showed a lack of normal discharge and much less swelling as compared to that of the other side. The neurohormonal substance which is responsible for the activity of the parasympathetic nerve fibers, at both the preganglionic and postganglionic connections, is probably acetylcholine.

Balancing this parasympathetic innervation of the nose is the sympathetic innervation, which arises in the upper thoracic seg-

ments. From here, preganglionic fibers pass by way of the stellate ganglia to the superior cervical ganglion, where they become postganglionic, then to the carotid plexus and into the sphenopalatine ganglia, and thence to the nasal mucosa in the maxillary division of the trigeminal nerve. It is noteworthy that in the sphenopalatine ganglion area both parasympathetic and sympathetic fibers exist side by side. The neurohormonal mechanism of the sympathetic nervous system is carried on by a substance known as sympathin, the activities of which are extremely similar to that of adrenalin.

Parasympathetic imbalance

In conditions of normal nasal physiology, the parasympathetic and the sympathetic systems operate in a state of balance or homeostasis. Any pathologic condition which tends to reduce or increase the activity of one of these systems without similarly affecting the activity of the other results in an imbalance between the parasympathetic and sympathetic neurohormonal outflow, and thence begin changes which produce symptoms⁽³⁾.

The overactivity of the parasympathetic system caused by the production of acetylcholine has the effect of stimulating the glands of the mucous membrane of the nose, at the same time increasing the turgor of the turbinates. If the parasympathetic outflow is uninhibited or increased by pathologic conditions, a congested and running nose results. If the parasympathetic innervation is decreased or the sympathetic innervation stimulated, the reverse effect takes place. There is vasoconstriction, with inactivity of the mucous glands of the nasal mucosa, and the nose is wide open and dry. This is the typical reaction which is produced by fear and which can also be seen after an injection of adrenalin in the human.

In the simplest terms, the congested and running nose is the result of relative overactivity of the parasympathetic nervous system, with the production of acetylcholine, regardless of the etiologic factor. In certain situations this apparent overproduction of acetylcholine may be the result of decreased effect from the sympathetic nervous system and the absence of a normal amount of sympathin in the physiologic system.

While both acetylcholine and sympathin are destroyed in the body by the enzymolytic systems, too little is known about these

systems at the present time to permit their practical use in therapeutics.

The role of histamine

At the moment there is a great deal of controversy as to just what role histamine plays in this picture. Histamine certainly is present in the body, it may be increased on exercise, and it also may be a factor in producing symptoms similar to those of parasympathetic overactivity in allergic states and possibly in certain other situations in which normal homeostasis has been disturbed⁽³⁾. There is suggestive evidence that histamine may produce its effects in the human body by suppressing the activity of cholinesterase and thereby causing a situation of relative parasympathetic overactivity. Certainly, the clinical picture of a histamine-induced reaction is similar to other reactions produced by stimulation of the parasympathetic system, and this factor must be borne in mind when considering therapeutic drugs⁽⁴⁾.

Therapeutic Drugs

Atropine and similar compounds

Since Galenic days, atropine-like alkaloid preparations have been known to be useful in combating the clinical effects of parasympathetic overactivity. Since the discovery of atropine itself in 1831, it has been used to control the symptoms of parasympathetic overactivity. It is known now that this drug and its allied compounds act by preventing the formation of acetylcholine at the nerve endings in both the pre- and postganglionic fibers of the parasympathetic nervous system. The main objection to the use of atropine for controlling rhinorrhea and nasal congestion has been that its untoward reactions throughout the body make the patient more uncomfortable. Now, atropine is infrequently employed as an oral preparation to control nasal congestion and rhinorrhea.

In the last few months several new compounds with atropine-like effects on the production of acetylcholine have become available. The most popular of these is Banthine, but there are other drugs prepared which have a similar reaction⁽⁵⁾.

These drugs have in common the following effects: They have a profound effect on the smooth muscle of the gastrointestinal tract, at the same time producing rather striking reactions in the nasal mucosa. They do not produce severe mydriasis, which is

Table 1
Results of Anticholinergic Drugs in the Control of Nasal Congestion

Drug	Good	Poor	Untoward Reactions
Banthine (50 mg. every 6 hours)	18	3	1 severe mydriasis 2 very dry mouth
No. 09031 (Lilly) (1 mg. every 4 hours)	10	4	none

one of the chief objections to atropine. They are longer acting, requiring less frequent doses. They do, however, generally produce drying of the mouth to an uncomfortable degree. We have found Banthine and another drug known as No. 09031, prepared by the Lilly Company*, to be particularly useful in resistant cases of vasomotor rhinitis (table 1). It is our belief that these cases represent chiefly a psychosomatic problem; but it is often helpful to control the nasal symptoms for a period and then to withdraw the drug, at which time the patient may be completely and permanently relieved of his symptoms. Table 1 demonstrates the results of the use of these two drugs. It is to be pointed out that the dose of either has to be varied for individual patients. This is best done by watching for extreme drying of the mouth as well as for excessive drying of the nasal mucosa.

Antihistaminics

A second useful group of drugs are those which at present are called antihistaminics. I think that this is an unfortunate choice of nomenclature, inasmuch as the activity of these drugs is only apparently antihistaminic, while the name implies that they work only in cases where histamine is present. This is far from true, and there is accumulating evidence to show that the activity of these drugs—which I prefer to call oral vasoconstrictors—may be less closely related to histamine than at first was thought. It is admitted that they prevent certain severe and often fatal histamine reactions in experimental animals. However, the activity of histamine in man is far different from that in animals, and there is evidence that these drugs, especially the ethylenediamines and the thenyl ring compounds, may function by increasing the enzymolytic actions of both cholinesterase and histaminase. If this be true, then these drugs could be expected to produce vasoconstriction and decrease nasal turgor and rhinorrhea, whether

*Drug No. 09031 made available through the courtesy of the Medical Department of the Eli Lilly Company, Indianapolis, Indiana.

Table 2
Types of Drugs

GROUP I ETHYLENEDIAMINE DERIVATIVES		GROUP III MISCELLANEOUS COMPOUNDS	
Pyribenzamine (Ciba)		Trimeton (Schering)	
Neo-Antergan (Merck)		Pyrolazote (Upjohn)	
Neohetramine (Wyeth)		Thephorin (Roche)	
Action—mild		Action—moderate	
Reaction—rare		Reaction—stimulation, insomnia, nausea	
GROUP II THENYL RING DERIVATIVES		GROUP IV ETHANOLAMINE DERIVATIVES	
Thenylene (Abbott)		Benadryl (Parke-Davis)	
Histadyl (Lilly)		Hydrillin (Searle)	
Diatrin (Warner)		Decapryn (Merrell)	
Tagathen (Lederle)		Action—strong	
Chlorothene (Whittier)		Reaction—high incidence of sedation	
Action—moderate			
Reaction—mild sedation			

or not these pathologic conditions were due to the presence of an abnormal amount of histamine.

A further advantage of the vasoconstrictors is that, while they have side reactions, most marked of which are drowsiness and occasional nausea, these reactions are less frequent and less severe than those of other available drugs (table 2), which inhibit or decrease the parasympathetic activity. Actually, the ethylenediamine-thenyl ring compounds produce less drowsiness and less drying of the mouth, with rare exceptions, than do the atropine-like drugs such as Banthine. I am aware that a number of unfortunate and occasionally fatal side reactions of these drugs have been recorded; but considering the amount which has been used in the last few months, they can be regarded as relatively safe, inasmuch as the reaction rate is about the same as that of aspirin⁽⁶⁾ (table 3). Good nasal vasoconstriction can be achieved by one of these drugs given orally in 85 per cent of patients.

Adrenalin-like drugs

A third and very useful group of drugs are those which have adrenalin-like reactions in the human body, including adrenalin itself, but principally ephedrine and its derivatives. Ephedrine, which produces vasoconstriction and a reduction of nasal turgor and discharge, was popularized after Chen and Schmidt isolated it in 1923. It can be administered either locally in the nose, or by mouth, and its effects do not seriously hamper the cilia when received by either route. A great many patients are hypersensitive to the stimulating effects of ephedrine, a fact which makes it a difficult drug to administer comfortably. Adrenalin itself is most helpful in severe attacks of nasal congestion and rhinorrhea, especially when

Table 3
Results of Antihistaminic Drugs in Controlling
Nasal Congestion

Drug	Cases		Reactions Severe Enough To Demand Stopping Of Drug
	Treated	Benefited	
Diphenylamine hydrochloride ("Benadryl")	138	114 (83%)	12 (8.7%)
Tripelenamine hydrochloride ("Pyribenzamine")	301	265 (88%)	10 (3.3%)
Thenylpyramine hydrochloride ("Histadyl")	407	362 (89%)	14 (3.4%)
Methyl-phenyl- pyridendine Tartrate ("Thephorin")	61	46 (75%)	11 (18%)

Table 4
Results of Thenylpyramine Hydrochloride
and Desoxyephedrine

	Cases		Reactions
	Treated	Benefited	
Thenylpyramine hydrochloride	146	112 (76%)	Drowsiness 12 Nausea 7
			19
Thenylpyramine hydrochloride and desoxyephedrine	173	152 (88%)	Insomnia 14 Pain 6
			20

Table 5
Results of Ascorbic Acid in Antihistaminic
Resistant Cases

Patients	Cured		Unimproved
	Improved		
Adults	6	3	4
Children	12	4	2

associated with severe allergic and asthmatic symptoms. However, this drug is not an oral preparation, and its secondary effects on the nose make it less useful than one might at first anticipate.

These drugs act by increasing pharmacologically the relative activity of the sympathetic system, thereby overshadowing any parasympathetic activity that may be responsible for nasal turgor and rhinorrhea. The ephedrine preparations are returning to popularity with certain workers who feel that the combination of a drug which stimulates sympathetic activity with a drug which reduces acetylcholine activity may be an ideal combination to control these symptoms. Inasmuch as a combination of drugs like these can be generally prepared in amounts which are synergistic, the unfavorable side effects of each of the drugs, therefore, can be avoided, and all of the de-

sirable direct pharmacologic effects obtained by a smaller dose of each drug.

We have been particularly interested in combining the activity of thenylpyramine hydrochloride with an ephedrine-like derivative, desoxyephedrine. This is at least as effective as thenylpyramine by itself, and has certain psychologic advantages in that it produces a sense of well-being in the patient, who generally has a feeling of mild depression as a result of the increased acetylcholine production in the body. We have found that 2.5 mg. of desoxyephedrine is a most satisfactory dose when combined with one of the other drugs producing acetylcholine depression (table 4). The preparation containing thenylpyramine hydrochloride and desoxyephedrine is not available commercially. However, there is available a preparation of thenylpyramine and ephedrine, in 25 mg. (3/8 grain) and 50 mg. (3/4 grain) capsules. The second capsule seems to me to be slightly stronger than is generally needed, and produces secondary ephedrine sensitivity phenomena which are usually undesirable. However, the efficacy of this combination is somewhat superior to thenylpyramine by itself, and a great deal superior to ephedrine without one of the thenylpyramine or ethylenediamine compounds.

The steroids and ascorbic acid

There is another group of substances which I feel belongs in the same class as ACTH and cortisone. It is rarely practical, for financial reasons, to resort directly to these drugs. In rare instances they prove useful, however, producing vasoconstriction in the nose and all other parts of the respiratory tract. They do so by enhancing the sympathetic activity, and therefore, if given in large enough doses, eventually overshadow any parasympathetic imbalance that may exist.

Of somewhat more practical value, but in the same category, is the use of ascorbic acid. This drug was used with considerable enthusiasm and success 15 and 10 years ago, before the discovery of some of the other vasoconstrictors. Ascorbic acid in large doses, 100 to 200 mg. every four hours, will produce vasoconstriction in many patients. This was somewhat of a mystery originally; but recent information concerning cortisone and the adreno-cortical steroids has shown the chemical similarity between the steroids

and ascorbic acid to be striking. It is a useful presumption that doses of ascorbic acid far larger than the minimal vitamin requirements serve to enhance the supply of the steroids available to the patient.

A particularly useful development of this theory has been the combination of ascorbic acid with one of the other drugs which depress parasympathetic activity. Every practitioner has encountered patients who became refractory to one or another of the ethylenediamine, ethanolamine, or thenyl ring derivative vasoconstrictors. We have found it useful to change vasoconstrictors, and, if this is unsuccessful, to combine the vasoconstrictors with large doses of ascorbic acid. The results of this type of therapy are shown in table 5. The combination has been more successful in children, but we have had reason to use it more often in children than in adults, primarily because children develop more quickly a tolerance to ethanolamine derivatives especially. We do not think that 600 to 800 mg. of ascorbic acid a day in divided doses is too much for a child weighing 40 pounds.

Summary

The anatomy and physiology responsible for homeostasis of the mucous membrane of the nose have been presented, and some of the mechanisms responsible for vasocongestion and rhinorrhea have been discussed. Using this physiologic basis, we have mentioned some drugs which can be given orally to correct these symptoms. These drugs included both sympathomimetics—such as ephedrine, desoxyephedrine, adrenalin, and ascorbic acid—as well as the vasoconstrictors, commonly called antihistaminics. It has been suggested that a more accurate term for the antihistaminic drugs would be oral vasoconstrictors. Information suggesting that these latter type drugs may act by accelerating the activity of cholinesterase, thereby preventing a parasympathetic imbalance which results in nasal symptoms of congestion and rhinorrhea, has been presented.

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THE PHYSIOLOGIC CORRECTION OF INTERNAL AND EXTERNAL NASAL DEFORMITIES

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With the recent interest in rhinoplastic surgery has come a re-evaluation of the physiology and anatomy of the nose. It is apparent that nasal deformities involve the internal and external nose simultaneously and that in order to restore normal physiologic function in these cases, complete surgical correction must be done. In 1899, Killian described the technique of submucous resection for the surgical correction of septal deformities. This is the operation of choice for deviations involving the middle and posterior thirds of the septum. It is inadequate, however, in deviations involving the anterior and superior portions of the nasal septum.

The Anatomic Structure of the Nose

The external nose has the shape of an irregular three-sided pyramid. It consists of a bony and a cartilaginous portion covered by skin, subcutaneous tissue, and muscles. The bony portion consists of two nasal bones, which are oblong in shape, meeting each other in the midline at the internasal suture; laterally they articulate with the frontonasal process of the maxilla, and superiorly they articulate with the nasal process of the frontal bone.

The cartilaginous portion of the nose is made up of five major cartilages. The two upper lateral cartilages are roughly triangular in shape, and may be thought of as lateral expansions of the septum. Each upper lateral cartilage attaches superiorly to the under surface of the nasal bone and frontonasal process of the maxilla, and medially to the septal cartilage and to each other. Inferiorly, each is attached by a firm aponeurosis to the lateral crus of the lower

lateral or alar cartilage, and is overlapped by it.

The two lower lateral or alar cartilages consist of a medial and a lateral crus, and the angle of their junction determines the shape of the tip of the nose. The medial crura are bound together by fibrous tissue of the columella. The lateral crus is oval in shape, and extends into the fibrofatty tissue of the ala nasi. Lesser alar cartilages are frequently present as lateral extensions of the lateral crus.

The septal cartilage forms the anterior part of the septum of the nose. It is quadrilateral in shape and fits into the triangular space of the bony septum posteriorly. Its posterosuperior border is attached to the perpendicular plate of the ethmoid bone, and the postero-inferior border joins the vomer and the anterior part of the crest of the maxilla. The superior margin of the septum extends from the internasal suture to the septal angle, and the anterior margin extends to the anterior nasal spine. The upper lateral cartilages are attached superiorly, but in their lower half are separated from the septum. The anterior border of the septal cartilage is connected to the medial crura by the membranous septum.

The Role of the Septum

Fomon states that "the septum under static conditions does not furnish support to the nasal pyramid but acts only as a reserve safety factor."⁽¹⁾ He claims that any part of the septum may be resected if provision is taken to prevent subsequent scar contractions. The configuration and support of the nasal dorsum is dependent upon the interrelationship of the nasal bones, the upper and lower lateral cartilages, and the cartilaginous septum. In some noses the superior border of the septal cartilage can be felt along the dorsum to a point where the septal angle joins the alar cartilage. The septal angle is immediately subcutaneous between the upper lateral and alar cartilages, and can be felt immediately if the tip of the nose is depressed. The anatomic defects that may cause this depression are: (1) the upper lateral cartilages may be too short and do not attach properly to the alar cartilages; or (2) they may diverge from the septal cartilage and attach more laterally to the lateral crus of each alar cartilage. In either instance, a weak triangle is present, and the complete or even the high removal of septal cartilage will cause a loss of support which

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can be felt at the time of operation and which, with scarring, will result in a saddle nose, often with drooping of the tip and later retraction of the columella.

Physiology of the Nose

To examine the nose properly, it should be inspected or observed during quiet and forced inspiration and expiration prior to the introduction of a nasal speculum. The examining speculum may correct the deformity of the nasal tip so that the whole abnormality goes unrecognized. Many times we grasp a nasal speculum, insert it into the naris, and observe the condition of the internal nose, with complete disregard of one of the most important areas—namely, the limen or nasal pinch-cock, which is situated 1 cm. from the external naris, and is formed by the inferior margins of the upper lateral cartilages and the septum. The extreme importance of this area to normal respiration is becoming more apparent. There are patients who have had rhinoplastic surgery with satisfactory cosmetic but poor functional results. Too often nasal physiology has been disregarded and the esthetic factor made the chief aim. Since nasal physiology is dependent upon the anatomic relationship of the internal and external nose, rhinoplastic surgery should be done only by those familiar with nasal physiology and anatomy.

Nasal Functions

The physiologic functions of olfaction, conditioning of the inspired air, and the self-cleansing action of the nose are well known to rhinologists. In order that these functions be performed, the inspired air must reach the proper areas of the nose. According to Proetz: "the inspired air is directed upward toward the roof of the nose by virtue of a constriction 1 cm. from the anterior naris. As it reaches the vault, it is directed sharply backward and downward in a parabolic curve, fanning out as it approaches the posterior naris or choana. The main current passes through the olfactory fissure close to the septum and only an insignificant portion of the air enters the meatuses.

"The expired air traverses much the same pathway in the reverse direction except that, owing to the disproportionate sizes of choana and anterior naris, a large eddy current occurs which occupies most of the nasal chamber. In this case, air enters the meatuses both from the choana and from the eddying currents below."⁽²⁾

Humidification, warming, and cleansing of the inspired air, is accomplished while it traverses this course. The air is humidified to about 90 to 95 per cent relative humidity, chiefly by moisture from the seromucinous glands. Traina (as cited by Eggston and Wolff⁽³⁾) showed that regardless of external temperature, from zero to 25 C., there was less than 1 C. difference when the air reached the pharynx.

Fomon⁽⁴⁾ has called attention to the fact that the nose acts as an efficiency regulator of respiration. In quiet respiration, there is little or no motion of the external nose; however, on forced nasal respiration, the upper lateral cartilages swing toward the septum, thus narrowing the limen and increasing resistance to the ingress of air. This motion (1) prevents air from entering the nose too rapidly and allows sufficient time for proper air conditioning; (2) places an optimal load on the respiratory muscles, causing a more forceful contraction with an increased depth of respiration; and (3) allows sufficient time for alveolar exchange. Complete closure of the limen is prevented by the alar cartilages, which are attached to the upper lateral cartilages by a strong aponeurosis. On forced inspiration the nares dilate by action of the dilator nares anterior and posterior, and the caput angularis. This draws the ala outward, stretching the aponeurosis, and prevents closure. That these muscles do bring this about was shown by Van Dishoeck⁽⁵⁾ (as cited by Fomon) in observations in unilateral facial paralysis. In quiet respiration there was no difference in pressure between the two sides; however, on forced inspiration the negative pressure on the normal side was minus 5.5 and on the paralyzed side it rose to minus 19 cm. of water, showing the effect of the collapsed ala.

Nasal resistance is so important to proper respiration that mouth-breathers try to emulate it by narrowing the lips and teeth to a small chink and by applying the tongue to the hard palate. Mouth-breathers have a more rapid and shallow respiration and, consequently, a deficiency in lung ventilation. Nasal respiration is smooth and regular, and passes almost unnoticed from inspiration to expiration.

Variations in the Underlying Nasal Anatomy

Deformities of the columella, ala nasi, or anterior portion of the septal cartilage may

cause nasal obstruction and alter nasal physiology. Each of these types will be discussed, but it is obvious that a deformity usually involves two or more of them.

The contour of the columella depends on the size and shape of the medial crura of the alar cartilages, the interposed fibrous tissue, and the inferior nasal spine of the maxilla. The medial crura may be (1) long, producing narrow nostrils; (2) short, producing transverse elliptical nostrils; or (3) widely separated because of interposed fibrous tissue or a thick anterior nasal spine. The columella may be retracted as the result of dislocation of the inferior margin of the septum or complete removal of the septal cartilage during a submucous resection.

The contour of the ala nasi is determined by the lateral crus of the lower lateral cartilage. It may be concave, producing a narrow or slit-like nostril, or convex, producing a transverse elliptical or negroid nostril.

Various authors have attempted to classify nasal septal deformities. Deviations of the septum are so varied and complex, however, that an adequate classification is difficult.

Deformities of the columella and ala nasi not associated with a septal deviation are correctible by rhinoplastic surgery. Their correction is not as important to the practicing rhinologist, however, as those associated with deflection of the anterior portion of the nasal septum. This causes both functional disturbance and cosmetic deformity.

Because of old teachings, anterior septal dislocations have been only partially corrected many times from fear of causing a saddle nose, drooped tip, or retracted columella postoperatively. The co-existing deformity of the tip, nares, and columella has been completely neglected. The typical picture of this deformity is as follows: The inferior border of the septum has become subluxated out of the vomerine groove; the anterior free margin has pulled the membranous septum from the columella, deforming it; the free margin of the septum projects into the nostril, frequently completely obstructing it. In the opposite nostril the septum is again deviated, obstructing the naris in the region of the limen. The upper lateral cartilages are distorted with angulation. The lower lateral cartilages are pushed or pulled out of line, deforming the nostrils; and, with change in the septal angle plus distortion of the lower laterals, there is

drooping of the tip and often retraction of the columella.

This deformity in varying degrees is not uncommonly encountered, and can be completely corrected with a restoration of function and cosmetic improvement. Recognizing the deformities that occur in the more complex cases, it is impossible to restore complete physiologic function by merely resecting a portion of the septal cartilage; the deformities of the upper and lower laterals must be corrected.

Surgical Techniques for the Correction of Deformities

Several techniques have been advocated for correction of deformities of the anterior portion of the septal cartilage.

1. Metzenbaum⁽⁶⁾ attempted to replace the septum in midline by a swinging-door technique. The mucoperichondrium is elevated on the side of the angle of deflection. The cartilage is freed posteriorly by an incision through to the opposite mucoperichondrium. Inferiorly, the septum is freed from the vomer and the crest of the maxilla, and swung back to midline after the superior portion of the septum has been cross-hatched or cut. This procedure is applicable to some deformities, but the results are often disappointing because it does not take into consideration other co-existing deformities, particularly that of the upper lateral cartilage, which brings about unequal pull on the replaced septum, often causing the septum to return to its previous position. Also, if the septum is thick and overlapped or fragmented, swinging it back to midline will not correct the nasal obstruction.

2. In the Galloway⁽⁷⁾ procedure, an incision is made on the right side of the membranous septum posterior to the posterior border of the medial crus of the lower lateral cartilage. A bed is created in the columella between the medial crura. The obstructing cartilage is removed, and a piece of the resected cartilage or preserved cartilage is re-inserted between the septal flaps and into the bed created in the columella. The graft should not extend posteriorly beyond the inferior margins of the upper laterals where they attach to the septum. The cartilage is brought into the columella by guy sutures, which are removed after the graft has been anchored by mattress sutures.

The Galloway procedure, or a modification of it, will correct anterior septal deformities

without associated tip and upper lateral cartilage deformity. When these occur they can be corrected with complete restoration of function and with an improved cosmetic appearance by a rhinoplastic approach.

3. Seltzer⁽⁸⁾ advocates a swinging-door method of correction. The intercartilaginous incisions are made, the skin and subcutaneous tissue are elevated from the dorsum, and transfixation of the nose is then completed. The upper lateral cartilages are severed from the septum. An incision is made in the mucoperichondrium anterior to the angle of deflection, and elevation of the septal flap is made beyond this angle. The cartilage is incised from the dorsum to vomerine groove, just anterior to the angle of deflection. A similar incision is then made about 1 to 5 millimeters parallel and anterior to it. Care is exercised not to cut the mucoperichondrium on the opposite side. With a comma-shaped hook the intervening cartilage is removed. The base of the septum is freed by an anteroposterior incision along the nasal floor to the opposite mucoperichondrium. The anterior cartilage is thus freed, and can be easily shifted to midline. The upper lateral cartilages are trimmed and sutured, and the septal cartilage is sutured to the membranous septum. This method is excellent for deformities in which the septal cartilage is not fragmented, overlapped, or markedly thickened.

4. Fomon⁽⁹⁾ advocates first incising the right side of the membranous septum and inserting a batten into a created pocket in the columella and anchoring it with mattress sutures. The transfixation of the nose is completed and resection of obstructing cartilage is done, irrespective of its location. Associated deviations of the ethmoid plate and vomer are corrected by the Killian procedure. Small cartilage grafts are inserted between the septal flaps, particularly along the dorsum, to prevent scar contractions. Correction of the upper lateral cartilage deformity will depend on the necessity of resecting the septum in this region. If a high resection is necessary, the upper laterals are submucously severed from the septum and trimmed and fashioned as necessary; if a high resection is not necessary, the upper laterals, including the mucous membrane, may be cut, trimmed, and then resutured.

Many other techniques have been described for the correction of anterior septal and tip deformities, but each case needs individual

study to evaluate the deformity properly and select the correct technique. The following cases present some of the typical deformities and their correction.

Illustrative Cases

Case 1 represents a congenital deformity with subluxation of the septal cartilage from the vomerine groove; the anterior free margin projects into the left naris. The right naris is distorted with partial collapse of the ala on forced inspiration. The dorsum is deviated to the left. Correction was obtained by the Seltzer technique.



Fig. 1 (Case 1).

Case 2 presents a traumatic deformity with a C-shaped deviation of the nasal dorsum and subluxation of the septal cartilage, with the free margin projecting into the right naris. There is associated tip deformity. This was corrected by a complete rhinoplasty, plus resection of a portion of the cartilaginous septum and the anterior nasal spine, with a batten placed in the columella.

Case 3 presents the typical saddle nose and



Fig. 2 (Case 2).



Fig. 3 (Case 3).



Fig. 4 (Case 4).



Fig. 5 (Case 5).



Fig. 6 (Case 6).

retracted columella which followed a submucous resection. Correction was obtained by a dorsal cartilage implant and a batten placed in the columella.

Case 4. This patient complained of external nasal deformity and nasal obstruction. Examination revealed a moderate septal deviation, especially along the floor of the nose, plus an external nasal deformity which included a pendulous tip. Because a moderate amount of breakdown was anticipated in the rhinoplasty, the submucous resection was deferred. Following the cosmetic reconstruction, the patient was subjectively relieved of his nasal obstruction. This relief may have been partly psychological, as a complete change in facial expression will be noted; however, it was partly obtained by the elevation of the tip and widening of the nasal dorsum, which changed direction of the inspired air.

Case 5 represents a routine rhinoplasty for deformities involving particularly the upper and lower lateral cartilages. The profile and full face views show a satisfactory

cosmetic result; however, the base view reveals a pinched tip, with partial collapse of the ala nasi. The patient now complains of slight nasal obstruction or forced inspiration. This deformity will be subsequently corrected with small cartilaginous implants into the ala nasi.

Case 6 is presented to show the change in facial expression following a typical rhinoplasty. You will note that the face appears softer and the eyes, lips, cheeks, and chin appear completely relaxed.

Summary

A review of the anatomy and physiology of the nose is given. It is apparent that deformities of the internal and external nose occur simultaneously, and that to restore physiologic function in these cases, complete surgical correction must be done.

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Hypertension is one of the commonest disorders of civilized life and results in the greatest burden of cardiovascular disease. After it has run its course of several years to a decade or more, it results in certain vascular changes that, in turn, produce changes within vital organs and bring about disability and death. We do not know much about the disease in spite of the epochal work of Goldblatt and his associates, and many others, regarding the disturbances of renal blood flow. This knowledge really has not advanced us very far in our treatment of this disorder. On the contrary we think it has hampered us in one respect because it has placed even more emphasis on the physical aspects of the disorder. For years we have studied patients with hypertension with the blood pressure apparatus, ophthalmoscope, fluoroscope, electrocardiograph, and by means of renal function studies; now we have added the intravenous urogram and, in certain clinics, more refined methods of studying renal blood flow. All this is proper but it is just the beginning; it is not the end of the study because patients with hypertension are usually anxious patients and their anxiety has some relation to the blood pressure.—Weiss, E.: *Emotional Factors in Cardiovascular Disease*, Springfield, Ill., Charles C. Thomas, 1951, chap. 6, p. 44.

CARBON DIOXIDE RETENTION DURING OXYGEN THERAPY

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The lungs have the function of eliminating carbon dioxide, as well as of absorbing oxygen. Failure to eliminate carbon dioxide properly does not often constitute a problem during pulmonary disease, because failure of oxygen absorption usually becomes critical first. There are several reasons for this. In the first place, tolerance to carbon dioxide excess develops more easily than tolerance to oxygen lack. Secondly, carbon dioxide has certain advantages over oxygen in the mechanics of gas exchange in the lung. For an equal difference in gas pressure between blood and air, it diffuses about 25 times more rapidly between blood and alveolar air than oxygen does⁽¹⁾ in the reverse direction. Further, overventilation of one part of a lung can make up for under-ventilation in another part with regard to the elimination of carbon dioxide, but not to the absorption of oxygen. Although very large quantities of carbon dioxide can be "blown off" by hyperventilation, little extra oxygen can be absorbed by this means. The amount of oxygen that can be taken up is limited by the hemoglobin content of the blood. For this reason, patients with cyanotic congenital heart disease usually have a normal blood carbon dioxide content and tension, while the per cent oxygen saturation of the arterial blood may be greatly reduced below normal.

Oxygen therapy can overcome or greatly improve deficient oxygen absorption. Since there exists no similarly effective means by which carbon dioxide elimination can be facilitated, however, the problem may gradually become critical in patients with progressive pulmonary disease who are being given continuous oxygen therapy.

The carbon dioxide tension of blood and body tissues may also increase rapidly when oxygen therapy is started on a cyanotic patient with chronic pulmonary disease. In the course of the disease, such patients have become accustomed to high tensions of carbon dioxide, and the respiratory center is no longer normally sensitive to this gas. Instead, much of the respiratory stimulus is being supplied by the low arterial blood oxygen tension, presumably acting through the arterial chemoreceptors. When this stimulus is abruptly removed by oxygen therapy, respiration is markedly slowed. The blood carbon dioxide tension will then rise rapidly.

Motley⁽²⁾ has pointed out that this course of events is probably responsible for occasional untoward reactions to oxygen therapy. Carbon dioxide, in sufficiently high concentrations, is a depressant rather than a stimulant⁽³⁾. In patients who are insensitive to the stimulating effects and whose respiration is depressed by oxygen, carbon dioxide may reach toxic levels during oxygen therapy.

The present report deals with four examples of the development of a high blood carbon dioxide tension during the course of oxygen therapy. The methods used in analysis of arterial blood gases have been described elsewhere⁽⁴⁾.

Case Reports

Case 1

The patient, a 31 year old man, died in June, 1950. He had had tuberculosis for 11 years. In November, 1948, a left thoracoplasty was done, leaving him short of breath. Fibrosis was present throughout the right lung, and the respiratory excursion of this side was much below normal.

A year before death he had settled into a bed and chair existence, with oxygen always available for self-administration. At this time his insistence on oxygen therapy prompted a study of arterial blood gases to determine his real need for oxygen. As shown in table 1, shutting off the supply of nasal oxygen caused a large drop in arterial oxygen content. The patient became dyspneic. When oxygen was given again, his breathing became quiet and comfortable. The arterial carbon dioxide tension was very high while the patient was breathing quietly on oxygen. While he was hypoxic and dyspneic, it was reduced a little, presumably by the increased ventilation. The patient was evidently quite tolerant to high carbon dioxide tensions.

He gradually became weaker, more lethargic, and more dyspneic. In April, 1950, the studies were repeated (table 2). The ability to excrete carbon dioxide was still further reduced. The arterial carbon dioxide tension, under oxygen therapy, rose to about three times normal.

One month later, he was admitted for the last time. He was given oxygen continuously, and was very weak and lethargic. On one occasion he was

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Table 1

Arterial Blood Gases in Chronic Pulmonary Disease
Case 1 (July, 1949)

Comment	Arterial O ₂ Per cent Saturation	Arterial pH	Arterial CO ₂ Pressure (mm. Hg.)*
Nasal oxygen, 3 liters per minute	99.7	7.27	81
On air, 10 minutes	79.1		
On air, 30 minutes	78.4		
On air, 60 minutes	71.8	7.34	67

* Normal arterial CO₂ pressure is 40 mm. Hg.

found to be unresponsive, and was breathing at a rate of 6/minute. Oxygen was shut off, and he quickly became cyanotic, began breathing more rapidly and deeply, and regained consciousness. One further examination of arterial blood a few days before death showed an oxygen saturation of 97.3 per cent, a pH of 7.26, and a carbon dioxide tension of 123 millimeters of mercury. Addition of 5 per cent carbon dioxide to the nasal oxygen for three minutes raised the arterial carbon dioxide tension to 131 millimeters of mercury, but produced no evident clinical change.

This case is an example of progressive pulmonary failure and loss of the ability to excrete carbon dioxide, with resultant, severe respiratory acidosis, in a patient who was kept alive for many months by oxygen therapy. It also illustrates loss of respiratory sensitivity to carbon dioxide, and demonstrates the rapid rise of carbon dioxide tension which can occur when the respiratory stimulus of such a patient is suddenly reduced by oxygen therapy. The terminal lethargy and weakness, and the brief episode of coma are thought to have been caused by high carbon dioxide tension.

Case 2

A 24 year old woman had had attacks of asthma since childhood. She was brought to the hospital during a severe attack, and became comatose shortly after admission. Arterial blood studies were made after she had been comatose for 18 hours. These studies are summarized in table 3. She died 24 hours after the last study. It is apparent that oxygen therapy was necessary, and that the carbon dioxide tension had become extraordinarily great.

Case 3

A 64 year old man for 30 years had had severe attacks of asthma, during some of which he became disoriented. He was brought to the hospital with severe asthma, improved for a few days, and then relapsed and became comatose. He was given continuous oxygen therapy and had frequent bronchoscopic aspirations. He remained comatose for four to five days, during which he had several short, generalized convulsions. He gradually improved and finally made a complete recovery. Blood gas studies made on this patient are summarized in table 4.

Table 2

Arterial Blood Gases in Chronic Pulmonary Disease
Case 1 (April, 1950)

Comment	Arterial O ₂ Per cent Saturation	Arterial pH	Arterial CO ₂ Pressure (mm. Hg.)
On air, 3 minutes	75.3	7.27	91
On air, 6 minutes	69.4	7.29	84
On air, 10 minutes	67.2	7.30	81
O ₂ , 2½ minutes	98.1	7.24	97
O ₂ , 6 minutes	99.3	7.19	113
O ₂ , 12 minutes	100.0	7.17	125
O ₂ , 18 minutes	100.0	7.17	124

Table 3

Arterial Blood Gases During Severe Asthma
Case 2

Comment	Arterial O ₂ Per cent Saturation	Arterial pH	Arterial CO ₂ Pressure (mm. Hg.)
Patient comatose; On 50% oxygen, 50% helium	98.9	7.02	129
Five hours later, after ad- ministration of sodium lac- tate; patient comatose.			
On nasal O ₂	94.6	7.04	155
Off oxygen 10 minutes	55.6	7.10	134

Table 4

Arterial Blood Gases During Severe Asthma
Case 3

Comment	Arterial O ₂ Per cent Saturation	Arterial pH	Arterial CO ₂ Pressure (mm. Hg.)
Second day of severe attack; patient comatose; on nasal oxygen	95.2	7.15	140
Seventh day. Patient respon- sive.			
Nasal oxygen	97.9	7.49	52
No oxygen	89.8	7.54	46

In patients 2 and 3, carbon dioxide tension became very high during severe, prolonged bronchial asthma. With oxygen therapy, both these patients maintained good arterial oxygen saturation. It is our belief that the comatose state of these patients resulted, at least in part, from their high blood and tissue carbon dioxide tensions.

Case 4

The patient, a 36 year old woman with anterior poliomyelitis, spinal and bulbar, was kept continuously in a Drinker respirator over a period of many

Table 5
Arterial Blood Gases of Patient in
Drinker Respirator
Case 4

Comment	Arterial O ₂ Per cent Saturation	Arterial pH	Arterial CO ₂ Pressure (mm. Hg.)
Oxygen administered by catheter into tracheotomy tube	96.4	7.26	88
Oxygen stopped for 5 minutes; respirator operating at same rate and pressure	59.5	7.26	90
Oxygen on 5 minutes; respirator operating as before	94.6	7.27	86

weeks. A tracheotomy had been done, and oxygen was being given by catheter through the tracheotomy tube. She had recovered from bronchopneumonia, and was thought to be doing well. She was stronger physically, fever had nearly disappeared, and a chest film showed that the pneumonia had cleared.

The patient then began to develop psychotic traits. She became very apprehensive, was disoriented at times, had definite delusions, and was thought by her physician to be having hallucinations. She was not cyanotic, and blood glucose was normal.

About ten days after this change in mental status was first noted, arterial blood gas studies were done (table 5). The carbon dioxide tension was very high. Arterial blood oxygen was normal while oxygen was being supplied by catheter. When the oxygen was shut off and the patient breathed air, the blood oxygen fell very rapidly. It was apparent that the respirator was not providing adequate ventilation. Cyanosis had not appeared, because extra oxygen was being supplied. Although carbon dioxide had accumulated to about twice the normal tension, the resultant symptoms were not easily identified as coming from respiratory insufficiency. It was found that the carbon dioxide combining power of the plasma had risen from approximately 60 volumes per cent two weeks before to 95-105 volumes per cent. It then appeared that the pressure gauge on the respirator had become defective and was registering a greater pressure differential than actually existed. The respirator was adjusted to provide adequate ventilation. Within a very short time the patient became oriented, pleasant, and optimistic, and this improvement persisted. In a week the carbon dioxide combining power had fallen to 72, and in two weeks it was 62 volumes per cent.

This case represents a lower grade of carbon dioxide toxicity than the preceding cases. It is nevertheless significant as an example of preventable carbon dioxide poisoning.

Summary

Four cases in which very high carbon dioxide tensions developed in patients with pulmonary disorders who were being given oxygen therapy are presented. These patients had mental disturbances, lethargy, and coma.

Carbon dioxide poisoning can easily occur during prolonged oxygen therapy, and its recognition can clarify situations which may appear quite puzzling.

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THE BLACK WIDOW SPIDER BITE SYNDROME

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SHALLOTTE

The black widow spider (*Latrodectus mactans*) is found in North, Central and South America, and has been reported in all but seven of the United States⁽¹⁾. This wide geographic distribution makes the black widow spider bite syndrome important to all physicians, especially to those in rural practice, as these cases are seen mostly in rural areas. In 1948, 400 cases of black widow spider bite, with 16 deaths, had been reported in the United States⁽²⁾, but no mention was made of the time period covered by this report.

In three years of general rural practice in Southeastern North Carolina I have seen 18 cases of black widow spider bite. From a comparison of these cases with the current literature on the subject, I feel that there is in the literature much confusion on the treatment and recognition of this syndrome.

Clinical Observations

In this series of 18 cases, 12 occurred in white and 6 in Negro patients. Five cases occurred in females and 13 in males. The age incidence ranged from 2 to 55 years, the greatest frequency being in the years of greatest activity. There was no correlation between severity of symptoms and age, sex, or race. It seems logical to assume that the severity of symptoms is related only to the amount of venom injected by the spider, and perhaps to the individual susceptibility of the patient.

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The popular conception that most cases occur while the patient is using a privy, and that bites on the buttox and genitalia are most common⁽³⁾ was not borne out by this series. In the 8 cases in which the location of the bite was noted, only one was on the penis, six were on the extremities, and one on the abdomen. Those on the upper extremity had been received while the patient was picking up sticks and firewood, and those on the toes while putting on shoes that had not been worn recently.

Diagnosis

The classic picture of the black widow spider bite syndrome is well known^(1, 4). However, the major symptoms vary in severity and type, and may be completely atypical. Usually they start as severe pains in the bones, muscles, and joints. If an extremity is the site of the bite, pain usually starts in that extremity and rapidly travels to the back and abdomen, where it settles and predominates. Although pain in the back or extremities may predominate, in most cases the abdominal pain is so severe that it will mask all other pain. The patient is usually doubled up and thrashing in pain. Severe shock may or may not be present. Vomiting is often present, but rarely severe. Although I have seen one case in which the abdomen remained soft and moderately tender in spite of severe abdominal pain, vomiting, and diarrhea, there is usually some degree of abdominal rigidity. The abdomen is frequently board-like, resembling that seen with a ruptured peptic ulcer, and many of these patients have been mistakenly subjected to surgery.

This difficulty of diagnosis occurs because the patient often does not recall having been bitten, as the initial sting is mild and the spider may not have been seen. The patient should be asked specifically if he had any burning or stinging sensation some time prior to the onset of the presenting symptoms. Then he will often recall the sting, and close examination will reveal the site of the bite. The actual bite varies in size and appearance from a small macule, often smaller than a matchhead, to a wheal the size of a quarter.

Following the initial bite is a latent period varying from about 15 minutes to four hours before the severe symptoms occur. In the average case this period is about a half an hour. The longer the latent period, the

less likely is the patient to remember the bite. One patient in this series for more than 12 hours emphatically denied having been bitten. His symptoms were not typical, and, although a spider bite was suspected, the diagnosis was discarded and the patient continued to have severe pain despite morphine and symptomatic therapy. When he finally recalled having been stung under his fingernail by some insect, specific therapy was instituted and he rapidly got well.

Black widow spider bite should always be considered in the differential diagnosis of severe abdominal pain. A carefully obtained history, recalling to the patient his bite, will often avert a grave surgical error. The patient's history and location of the site of the bite may be the only differential clinical points between these two conditions. A high index of suspicion on the part of the physician is often necessary to establish a diagnosis.

Treatment

On the subject of treatment the literature is confusing and misleading. I contend that the treatment of the black widow spider bite is simple, easy, and definitive; that it is an office procedure; and that rarely, if ever, should hospitalization be necessary. Adequate relief is obtained only by the use of specific antivenin, of which more will be said later. In the early cases of this series, before specific therapy was used, the duration of symptoms varied from 12 to 211 hours. It is probably the variation in the natural length of the syndrome that accounts for many of the published successful treatments of individual cases.

Bell and Boone⁽⁵⁾ report one case successfully treated with neostigmine methylsulfate and atropine after six and a half hours of severe pain. I have tried this in one case and was not impressed with the result. Davis⁽⁶⁾ states that the spider toxin acts like an overdose of strychnine or physostigmine and recommends treatment with curare or similar drugs. I have had no experience with this method, but feel that the new curare derivatives might be useful in combating the spasm and pain. Morphine is recommended for the relief of pain⁽⁷⁾. I have used both morphine and Methadon and find that, while they do lessen the pain to a varying degree, they do not give complete relief. If morphine is used it should be given intravenously in order to avoid a cumulative effect. Antihis-

taminics proved to be of no value in my hands.

Calcium gluconate or magnesium sulfate given intravenously is widely recommended^(1,2,4b,6,7a,8). These are excellent drugs for relieving pain and spasm, but the relief given is transient, lasting only from five to 30 minutes. It is necessary to keep repeating these injections until the syndrome reaches its natural termination, as these drugs in no way neutralize the spider toxin. This type of treatment is necessarily prolonged, and often requires hospitalization and more or less constant attention. If this type of treatment is used, the alternate injection of 10 cc. of a 10 per cent solution of calcium gluconate and 2 cc. of a 50 per cent solution of magnesium sulfate as needed is probably better than the administration of just one of these two drugs. In the absence of specific therapy, this is probably the best treatment.

Although specific therapy is recommended by many authors, the impression is given that it is not available. Black widow spider antivenin* is a stable, dried horse-serum preparation with a five year expiration date. Any doctor practicing in a rural area can keep a small stock on hand, so that it will be available when needed. The price is not prohibitive. I have used antivenin in my last 9 consecutive cases, and am convinced that it is the best rapidly effective treatment known today. All the patients given antivenin were treated in the office, and no hospitalization or prolonged care was required.

My routine technique is adapted from Miller⁽⁹⁾, whose treatment is based on 10 years of experience with this syndrome. On diagnosis, 10 cc. of a 10 per cent solution of calcium gluconate or 2 cc. of a 50 per cent solution of magnesium sulfate is given intravenously to relieve the pain. While this is in effect the patient is tested for serum sensitivity, then one vial of antivenin is given intramuscularly. Usually this is all that is necessary. It is advisable, however, to tell the patient to stay in town, or at least be available, as occasionally more antivenin is needed.

The antivenin as packaged today is dry, and is accompanied by 2.5 cc. of distilled water into which it is to be dissolved. I find that it takes too long for the serum to dis-

solve in this little water and prefer to use 5 cc. of distilled water instead.

Results

In 7 of the 9 cases, this was all the treatment required. In 1 patient, pain returned immediately after the injection of antivenin, and a second ampule of calcium gluconate was needed to tide him over until the antivenin took effect. One patient required a second ampule of antivenin four hours after her first one. She was fairly comfortable during most of those four hours, and had no trouble after her second injection.

Two patients developed mild serum sickness three and five days respectively after the serum was given. These reactions were easily controlled with antihistaminics. No patient in this series was serum sensitive to the test dose. Should this occur, I would not hesitate to give the antivenin after properly desensitizing the patient. Repeated intravenous injections of calcium gluconate or magnesium sulfate would keep the patient comfortable until desensitization could be accomplished.

Two patients received antivenin within 35 minutes of the bite. In one case the pain was just starting, and was successfully aborted. In the other case the antivenin was given 25 minutes after the bite and before the onset of severe symptoms. This patient had no symptoms at any time other than the transient sting of the bite.

Summary

1. With the wide geographic distribution of the *Latrodectus mactans*, the black widow spider bite syndrome is likely to be seen by the rural practitioner.

2. Because of the immediate trivial symptoms, the bite may not be noted by the patient. Therefore, in many cases, a high index of suspicion must be exhibited by the physician in order to make the diagnosis. Black widow spider bite must always be considered and carefully ruled out in the differential diagnosis of the acutely painful abdomen.

3. In spite of the enthusiastic reports favoring the intravenous administration of calcium gluconate and magnesium sulfate, these drugs are palliative at best and will not shorten the duration of the illness nor prevent hospitalization.

4. The use of specific antivenin is the best treatment to date. It is inexpensive, easy to administer, and definitive. With the use of

*Antivenin *Latrodectus mactans* is distributed by Sharp & Dohme, Co., Philadelphia.

antivenin, treatment of the black widow spider bite becomes an office procedure, and prolonged morbidity and suffering are avoided.

5. Rural practitioners should keep a stock of antivenin on hand, so that it will be available when needed.

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COMPLICATIONS OF POISON IVY (*Rhus Toxicodendron*) DERMATITIS

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Poison ivy dermatitis is usually considered to be an annoying but benign condition. In general this is true, since the national incidence is estimated at 350,000 cases per year⁽¹⁾, and significant complications are seldom seen.

The dermatitis of poison ivy is indistinguishable from that of poison oak. Poison ivy (*Rhus toxicodendron*), however, is a trifoliate vine found from the Atlantic coast to the Rocky Mountains, while poison oak is a trifoliate shrub occurring from the Rocky Mountains to the Pacific coast. In both instances the dermatitis is produced by the intense irritating properties of urushiol (labinal, toxicodendrol)⁽²⁾, found in the leaves, bark, roots, fruit, and flowers of these plants.

An analysis of the types of complications which might occur may suggest means of preventing many of them and an intelligent management of those with which we are faced.

The accompanying outline suggests a

classification of the types of complications which may develop.

Table 1

- I. Skin Complications
 - A. Secondary infections
 - B. Development of "eczema"
- II. Renal Complications
- III. Systemic Complications
- IV. Therapeutic Complications
 - A. Dermatitis venenata from local treatment (treatment dermatitis)
 - B. Dissemination of eruption from injections of Rhus extracts
 - C. Toxic psychosis from injections of Rhus extracts

Skin Complications

Skin complications are by far the most numerous with which we have to deal, particularly those caused by secondary infection.

Secondary infections

Unless the bullae and vesicles are treated appropriately, micro-organisms may gain a foothold and dominate the picture. If secondary invading micro-organisms become sufficiently entrenched, an impetigo-like process may develop; or an infectious eczematoid dermatitis may result from the staphylococci and/or streptococci through their own "eczematoid"-producing abilities.

Many patients who present themselves with pus-filled blisters, are in need of penicillin and wet compresses rather than the injections of poison ivy extracts which they may have been receiving.

Development of "eczema"

An acute vesico-bullous dermatitis venenata may be followed by a chronic dermatosis, which we shall refer to by the vague term, "eczema." In such instances, the dermis rather than the epidermis becomes the main shock tissue to moderate exposures of *Rhus toxicodendron*, and the clinical picture may be that of pale erythematous lichenified lesions, either dry or moist. On heavy skin contamination with Rhus in such cases, however, the epidermal reaction, as manifested by vesicles and bullae, again predominates.

Ascorbic acid has been advocated in the treatment of Rhus dermatitis on the theory that it might inhibit histamine, interfere with the allergic reaction, and maintain vascular tone⁽³⁾. This has proved worthless in my experience, with the possible exception of 2 cases of chronic "Rhus eczema." The history of one of the cases follows below. I believe that these patients are more likely to be helped by desensitizing to extracts of

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Rhus toxicodendron than are patients subject to the usual acute poison ivy vesicobulbous dermatitis. Antihistamine drugs seem to be helpful in controlling pruritus in such patients.

Case report

Each spring for the previous 12 years a 40 year old white woman, who was first seen in July, 1949, had developed a vesicular dermatitis on various exposed parts of the body. From early spring until late fall, she experienced areas of persistent, more or less dry eczematoid dermatitis, which were usually on the face and arms. Occasionally there would be fresh crops of vesicles which she usually associated with contact with her young child, who had never had poison ivy, after he had played out-doors. Conscious of the fact that even the slightest exposure to poison ivy on her part would result in violent blistering dermatitis, she avoided such exposures to the best of her ability. On several occasions, she had taken "poison ivy injections" after the dermatitis had developed, and she felt that she had always been benefited by them.

The present episode had commenced about three months previously. In the beginning the eruption had been vesicular, but had become "chronic" and itched intensely.

The patient's general health was good. There was no personal nor family history of asthma nor hay fever. She had experienced no other skin affections.

Physical findings: Examination of the skin showed a moist eczematoid dermatitis involving all surfaces of the arm in the region of the right elbow. There were linear erythematous streaks on the volar surface of the left forearm, and several erythematous blotches about the neck and on the legs.

A patch test with Poison Ivy Extract (Wyeth) applied beneath the left breast showed definite vesiculation after 48 hours. A urinalysis and complete blood count were not remarkable.

Course: She was placed on 25 mg. of ascorbic acid three times a day, and given a drying lotion containing 2 per cent boric acid and 5 per cent tannic acid.

Six weeks later, she was seen again and stated that the dermatitis had cleared up within a week after her first visit, but that she had experienced two mild episodes of blisters afterwards. She stated that each episode had occurred after she had bathed her child, who had been playing in wooded areas.

In 1950, she took five injections of ivy extract at weekly intervals, commencing the first part of February, and took vitamin C fairly regularly. Her only trouble during the entire year consisted of a few vesicles about the wrists the latter part of June. At that time, she had not taken any vitamin C for two weeks, since her supply had become exhausted, and she had been so well that she neglected to get more.

Parenteral injections of *R. toxicodendron* apparently had helped this patient on several occasions in the past when the dermatitis had become chronic. The improvement which was noted at such times did not seem to be related to any local therapy used. A combination of vitamin C and extracts of *R. toxicodendron* given parenterally several weeks prior to the *Rhus* foliage season gave her almost complete freedom from vesicular dermatitis for the first year in 1951.

It must be appreciated, of course, that such patients have a "*punctum minoris resistentiae*," and that the poison ivy eruption

may act to open the door to other sensitizations.

Renal Complications

I have never seen a patient with recognized renal complications from *Rhus* dermatitis. Rytand⁽⁴⁾ has reported 7 cases in which renal complications appeared as the dermatitis was healing. In one patient fatal uremia with severe renal tubular degeneration developed. The nephrotic syndrome was prominent in 4 others. In 2 cases of probable streptococcal infection, the syndromes resembled the onset of glomerulonephritis.

Renal complications are explained on the basis: (1) that broken skin could serve as portals of entry for infection; (2) that the agent provoking the dermatitis is one which causes sensitization. The former theory could explain the development of glomerulonephritis, and the latter the occurrence of the nephrotic syndrome.

Systemic Complications

In cases of severe widespread involvement, there may be considerable loss of serum with resulting protein depletion. Such cases should be treated just as are severe burns, with careful attention directed towards maintaining the serum proteins.

Patients with severe extensive involvement or with heavy secondary infection may exhibit fever or even delirium. When secondary infection is suspected as being the offender, antibiotics as well as appropriate local therapy are indicated.

Therapeutic Complications

Dermatitis venenata from local therapy (therapeutic dermatitis)

Reactions from local therapy are not infrequent. Since a *punctum minoris resistentiae* exists, medicaments which under ordinary circumstances would be tolerated well by the skin may produce a treatment *venenata*. Consequently, local treatment should not be drastic. Wet dressings, and mild soothing lotions are about as far as one should go in treating an ordinary non-infected case of poison ivy dermatitis.

Dissemination of eruption from injection of Rhus extracts

On numerous occasions patients with a mild vesicular dermatitis have developed a generalized eruption after the injection of *Rhus* extracts during the acute eruptive phase of the disease. This eruption common-

ly takes the form of erythematous macules or papules, and may closely resemble an id reaction, commonly seen in a disseminated form secondary to macerated mycotic infections of the feet or crural regions or to an infected varicose ulcer of the ankle. Sometimes, the generalized eruption may be urticarial in nature. It may be accompanied by high fever and joint swelling.

Since injections of Rhus extracts offer nothing theoretically nor practically in treating the acute phase of poison ivy dermatitis, and whereas they may do a great deal of harm, it should be axiomatic never to inject Rhus extracts during the acute blistering phase of the disease.

Toxic psychosis from injections of Rhus extracts

This is an uncommon condition. I have seen but one such case, and this will be described below.

Case report

A 15 year old white farm girl was admitted to the hospital on June 11, 1949, on the fourth day of her illness. Five days previously, she had watched her father at work constructing a fish pond. On the following morning her face was edematous, and vesicles were present. She was given an injection of poison ivy extract that day and on the following by her physician. By the third day, there were numerous vesicles on the arms and legs, and she was given a third injection of poison ivy extract. Shortly after this injection, she became delirious and on the following morning was admitted to the hospital.

She had previously had "poison ivy" on three different occasions without complications. Three years previously she had been given six injections of poison ivy extract during the active phase of the disease without ill effect.

A review of her personality with her family showed no significantly abnormal traits except for rather marked shyness.

Physical examination: Oral temperature was 99.2 F. and pulse 82. The patient was completely disoriented. She was unable to answer any question intelligently. A marked degree of catatonia was present. Marked facial edema was present. Numerous vesicles and bullae were present on the face, arms, and legs. The remainder of the physical examination, including neurologic examination, was negative.

Routine examinations of the blood and urine were not remarkable significant.

Clinical course: She was started on intravenous infusions of 5 per cent dextrose in normal saline, along with 50 mg. of Benadryl by mouth every six hours. Dressings wet with $\frac{1}{2}$ per cent solution of aluminum acetate were applied to the involved areas.

Within 24 hours the sensorium had returned to normal, and the catatonia had completely disappeared. This seemed to disprove the diagnosis of catatonic schizophrenia, which I had made the previous day.

On the second hospital day, she was started on colloidal baths and a soothing drying lotion, and was discharged on the fourth hospital day, at which time her mental functions seemed normal, and the skin eruption was improving nicely.

Since that time, this patient has been seen at irregular intervals. Two months after discharge from the hospital, a patch test with Poison Ivy Extract (Wyeth) gave no reaction after 48 hours.

In June of 1950, she was seen again because of mild dermatitis venenata of the arms and legs. She was treated with aluminum acetate compresses, Benadryl, intravenous calcium gluconate, and later with a soothing drying lotion. The vesicles subsided completely within one week.

A patch test with Poison Ivy Extract (Wyeth) made during the latter episode showed slight vesiculation after 48 hours.

The patient has been seen several times, although not professionally, since June, 1950, and appears to be perfectly normal.

It would appear that this patient developed a severe toxic psychosis following the third injection of poison ivy extract. Two previous injections had seemed to aggravate the skin lesions. The mental symptoms appeared within an hour or two after the third injection, and led to a presumptive diagnosis of catatonic schizophrenia. The mental symptoms cleared up completely within a period of about 24 hours.

Summary and Conclusions

1. Poison ivy dermatitis may lead to complications in the skin and kidneys, as well as systemic symptoms. These complications are discussed in detail.

2. Treatment dermatitis venenata often complicates local therapy, particularly when such therapy is overly vigorous.

3. The use of poison ivy extracts during the active phase of Rhus dermatitis is condemned. This practice frequently aggravates and disseminates the existing eruption.

4. A clinical case of what we have termed "chronic Rhus eczema" is described.

5. A clinical description is given of a patient who developed a mental syndrome resembling catatonic schizophrenia, following the injections of Rhus extracts during the acute active phase of Rhus dermatitis.

References

1. Turner, C. E.: Rhus Dermatitis As Public Health and Health Education Problem, *Am. J. Pub. Health*, 37:7-12 (Jan.) 1947.
2. Urbach, E., and Gottlieb, P. M.: Allergy, ed. 2. New York, Grune & Stratton, 1946, p. 376.
3. Klasson, D. H.: Ascorbic Acid in Treatment and Prevention of Poison Oak Dermatitis, *Arch. Dermat. & Syph.* 56:864-867 (Dec.) 1947.
4. Rytand, D. A.: Fatal Anuria, Nephrotic Syndrome and Glomerular Nephritis as Sequels of Dermatitis of Poison Oak, *Am. J. Med.* 5:548-560 (Oct.) 1948.

The general practitioner or family physician, because of his close association with the family, must occupy an important place not only in the prevention of tuberculosis but also in the treatment during what are ordinarily termed the pre- and post-sanitarium periods.—Edward W. Hayes, M.D., Calif. Med., December, 1950.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

JANUARY, 1952

COMMISSION ON FINANCING OF HOSPITAL CARE

As our readers have learned from the pa-
pers, the American Hospital Association has
established a Commission on Financing of
Hospital Care "to make a two-year intensive
study of the best means of providing high
quality hospital care at the lowest possible
cost to the public. . . The Commission is
being created with full authority to report
independently to the American public the
results of its findings."

Funds for the study have been provided
by a number of philanthropic agencies, and
some private donations. The chairman of the
National Commission is Dr. Gordon Gray,
president of the University of North Caro-
lina. The director is another North Caro-
linian, Mr. Graham Davis, who for 15 years
was employed by the Hospital Section of the

Duke Endowment, and who now is director
of the hospital division of the W. K. Kellogg
Foundation. Mr. Davis was granted a two-
year leave of absence from the Kellogg Foun-
dation.

That North Carolina should have had the
honor of being chosen by the National Com-
mission for the pilot study of hospitals was
not solely because Gordon Gray and Graham
Davis are both natives of the state. The
Duke Endowment has for 26 years given
financial aid to hospitals in the state, and
as a result has accumulated statistics on
these hospitals which will be of great value
in the work of the Commission.

The objectives of the national study, as
outlined in the prospectus presented by the
American Hospital Association, are:

1. Evaluation of the current financial po-
sition of hospitals.
2. Determination of the need and demand
for hospital services.
3. Analysis of the effect of medical prac-
tice on hospital costs.
4. Establishment of means of obtaining
needed high quality hospital services at the
lowest possible costs.
5. Evaluation of systems of payment for
hospital care.
6. Investigation of methods for facilitat-
ing the most effective utilization of hospital
resources.

7. The Commission will make recommen-
dations for accomplishing changes which ap-
pear desirable as a result of this study.

When the announcement of the study was
first made, the reaction of many was that
it was simply another move to stimulate
public demand for the federal government
to take over both hospital and medical care.
Those who attended the first meeting of the
state committee, however, came away with
the impression that, while there would be
differences of opinion in the group, it was
a representative body of North Carolina citi-
zens and that every member seemed to be
sincerely seeking to find the answers to the
various problems facing the Commission.
Certainly neither Gordon Gray nor Graham
Davis can be accused of having socialistic
backgrounds. It may be recalled that not
long ago Mr. Davis made himself quite un-
popular with American Legion leaders by
opposing the reckless construction of Vet-
erans Administration hospitals when the re-
sources of private hospitals were available.
Mr. Becker was chosen because of his record

in promoting voluntary hospital insurance in Michigan, and after he had been recommended by leading physicians of Michigan and by well known American Medical Association officials.

It is to be hoped that the doctors of North Carolina will justify the confidence placed in this state as a national leader in medical and hospital care by giving their full cooperation to both the state committee and the National Commission.

* * *

CONGRESSMAN DOUGHTON— THE DOCTOR'S FRIEND

The *Mooreville Tribune* for December 13 has a feature article telling of the defeat of a bill that, in the words of the *Tribune* writer, "would have put at the mercy of a gang of socialists in our Government every school of medicine, every school of dentistry, in America for the next five years," and "would have destroyed every 3-year school of nursing in America. Instead of the 3-year schools we would . . . have schools for the so-called 'super' nurses who would have probably have directed the work of the practical nurses."

The article relates that Dr. James W. Davis of Statesville got a copy of the bill after it had been passed unanimously by the Senate, just 24 hours before it was to go before the Rules Committee of the House. With Dr. L. B. Skeen and six nurses he caught a plane for Washington, where he explained to Congressman Robert L. Doughton the dangerous nature of the bill—which had been worded so insidiously that senators who were bitterly opposed to socialized medicine had voted for it. When the chairman of the Rules Committee, Percy Priest, tried to brush off the delegation by limiting the discussion to 40 minutes, Mr. Doughton protested so vigorously that they were allowed nearly three hours to present their arguments, which proved so convincing that the Rules Committee promptly killed the bill.

This story gives fresh evidence of the tremendous influence that Congressman Doughton has in Washington; and it also proves that he is a real friend of the doctors. The medical profession of North Carolina and of the nation owes a vote of thanks to Dr. Davis, for his vigilance—and to Congressman Doughton, for his very effective support.

It must not be assumed, however, that those who want to see the healing professions controlled by politicians have given up the

fight. Bulletin No. 37 (Nov. 21, 1951) from the Washington office of the American Medical Association lists more than a score of bills calculated to give more or less political control to medical practice. Heading the list is Senator Murray's S. 337, "Authorizing funds to support medical, dental, osteopathy, nursing, public health, and hospital administration schools." Two separate bills "To provide a program of compulsory national health insurance" were introduced in the House (27, by Heller; 54, by Dingell).

"Eternal vigilance is the price of liberty."

* * *

WERE AMERICAN PRISONERS MURDERED?

The report recently released that more than 5000 American prisoners have been murdered by their Communist captors was the subject of comment by Mr. J. W. Clay in his syndicated column, "My Notions." Mr. Clay recalls that in every war atrocity tales are circulated by both sides. He says that if the story is true, it should have been published long ago, instead of being withheld until we are beginning peace talks. He personally has little faith in the story, and comments:

"Why should the enemy be so foolish as to murder American prisoners when living prisoners would be a trump card in their hands at the final peace table? Dead prisoners would have no bargaining value. The fact of their murder would be a liability rather than an asset. And the Communists are not dumb."

Mr. Clay's column calls to mind a little book written by Vilhjalmur Stefansson, the Arctic explorer, and published in 1927. In this book Mr. Stefansson told of a famous general who defended the invention and circulation of lies during World War I on the ground that "if you are justified in using shrapnel, poison gas, and torpedoes from submarines and bombs from airships, you are justified in using any means at all."⁽¹⁾

This general was a good prophet, at least. In Mr. Stefansson's book—published in 1927, more than 14 years before Pearl Harbor—he was quoted as saying that he expected another war within 25 years from the last. When asked how he justified giving away his country's propaganda secrets, when similar propaganda would be needed in the next war, he replied that it would only be necessary to say, "We fooled you in the last war. But times have changed, and that sort of

thing would not work now. Besides, we would not fool you even if it served our ends, we have become so honorable." After this explanation, the same methods could be used, and even the same tales repeated.

The great majority of the American people would resent being considered as gullible as Mr. Stefansson's general assumed them to be. Certainly the parents of the American boys in Korea, whether prisoners or not, should not be made to suffer for the sake of rousing the fighting spirit of other Americans. It must be admitted, however, that the "Papa knows best" attitude of many of our government officials and military leaders is not calculated to increase public confidence in official statements.

Unquestionably there are times for "righteous indignation," but indignation that is truly righteous is apt to be spontaneous. It does not need to be stimulated by propaganda—especially propaganda that is not true.

1. Stefansson, V.: *The Standardization of Error*, New York, W. W. Norton & Co., 1927.

* * *

CIGARETTE SMOKING AND BLOOD FLOW

For some years it has been accepted that cigarette smoking caused a marked decrease in the blood flow of the skin. The accuracy of this view is sharply questioned by Dr. J. T. Shepherd in the *British Medical Journal* for October 27. Dr. Shepherd believes that the notable decrease in the blood flow reported by various observers has been obtained because the subjects tested smoked at a much more rapid rate than was normal.

In a series of experiments undertaken by him, each subject was asked how often he normally inhaled while smoking. "The usual reply was, 'Every 15 seconds,' and this rate was adopted in the preliminary series of experiments. However, generalized reactions . . . dizziness, nausea, and a feeling of faintness commonly followed inhalation at this rate." In 50 smokers who were surreptitiously observed it was found that the shortest time between inhalations was 43 seconds, the longest 68, and the average 66. After this, a series of subjects inhaling at intervals of one minute were tested, and it was found that there was no appreciable change in the level of the blood flow in their hands during and after smoking at this normal rate. A transient drop in blood flow was obtained

after each deep inhalation, whether the cigarette was lit or not.

Dr. Shepherd reasons that the discrepancy between his results and those of previous observers may be due to a difference in the rate of smoking adopted. None of the previous observers timed the intervals between inhalations, but asked the subjects to smoke at their normal rate. Some of their subjects experienced vertigo, nausea, and other symptoms, whereas none of Shepherd's, inhaling at one minute intervals, had any unpleasant symptoms.

Whether or not one accepts Dr. Shepherd's conclusions, one must admire the astuteness of his observation concerning the effect of the rate of smoking on blood flow. Certainly it underscores the importance of being sure that observations are accurate before drawing conclusions from them.

* * *

VALUE OF HISTAMINE SKIN TESTS IN MENIERE'S DISEASE

Since Meniere in 1861 first described the syndrome that bears his name, various theories have been proposed concerning its etiology and treatment. Perhaps the most widely popularized conception regards it as allergic in origin. Atkinson⁽¹⁾ has led in ascribing it either to allergy or to vasospasm, and has popularized the use of histamine skin test as a means of distinguishing between the two mechanisms. He and his followers recommend treating the histamine-sensitive patients with desensitizing doses of histamine, the histamine negative (and presumably vasospastic) with nicotinic acid as a vasodilator.

Unfortunately for Dr. Atkinson's method, a British investigator⁽²⁾ decided to test the validity of his histamine skin test. Fifty victims of Meniere's syndrome were tested by Atkinson's technique together with a corresponding number of controls. The number of positive reactions obtained was exactly the same in each group. The more often the tests were repeated in a subject, the greater the number of positive reactions obtained.

Again we see the importance of accurate test and control experiments before far-reaching conclusions are drawn.

1. Atkinson, M.: *Observations on the Etiology and Treatment of Meniere's Syndrome*, J.A.M.A. 116:1753-1760 (April) 1941.
2. Haggie, H.: *Value of Histamine Skin Tests in Meniere's Disease*, Brit. M.J. 2:1057-1062 (Nov. 3) 1951.

CORRESPONDENCE

TO the Editor:

As part of the civil defense communicable disease control program, all of the states have been asked to adopt a uniform list of reportable diseases.

The State Board of Health has revised the North Carolina list, effective January 1, 1952. The changes consist of adding several diseases of importance but of relatively low incidence so that the increased burden for most physicians will be negligible. To make the reporting of communicable diseases easier, the State Board of Health has also approved for use, beginning in 1952, a report card that combines the three existing separate communicable disease report cards.

Attached hereto is a revised list of these diseases showing a summary of the isolation

and quarantine requirements. Several simplifications have been adopted in regard to the latter. If space is available, it would be very helpful to have this list printed in the JOURNAL.

The prompt reporting of communicable diseases is important at all times in the development and operation of efficient control programs. At this critical time, prompt reporting will help to keep civilian and military morbidity at a minimum and is essential also as a defense against biological warfare. For this latter reason, any unusual incidence of a communicable disease, whether the disease is on the reportable list or not, should be brought to the attention of the local health officer, who has been instructed to forward all information promptly.

J. W. R. Norton, M.D.

Secretary and State Health Officer
N. C. State Board of Health

* * *

NORTH CAROLINA STATE BOARD OF HEALTH LIST OF REPORTABLE COMMUNICABLE DISEASES (Revised through January 1, 1952) (In addition to the diseases specified herein, cancer is also reportable)

<i>Disease Required To Be Reported</i>	<i>Placarding For Period of Isolation Or Quarantine</i>	<i>Isolation of Patient</i>	<i>Quarantine of Contacts</i>
*Anthrax	Required	Required until all lesions are healed	Required for 7 days from last exposure
†Botulism	Not Required	Not Required	Not Required
Chancroid	Optional with health officer	Optional with health officer	If suspected of being infected—optional with health officer
*Cholera	Required	Required until 3 stool cultures at 48-hour intervals are negative	Required for 5 days and until 3 stool cultures at 48-hour intervals are negative
Dengue	Not Required	Required to be screened until 6th day	Not Required
Diphtheria	Required	Required until 2 cultures at 24-hour intervals are negative or for 21 days	Required for susceptible contacts for 7 days from last exposure
Dysentery, Amebic	Not Required	Not Required	Not Required
*Dysentery, Bacillary	Not Required	Required until 2 stool cultures at 5-day intervals are negative or for duration of disease	Not Required
Encephalitis	Not Required	Required to be screened for duration of fever	Not Required
Glanders	Required	Required until all lesions are healed	Required for 14 days from last exposure
*Gonorrhea	Optional with health officer	Optional with health officer	If suspected of being infected—optional with health officer
Granuloma Inguinale	Optional with health officer	Optional with health officer	If suspected of being infected—optional with health officer
†Hepatitis	Not Required	Optional with health officer	Not Required
Leprosy	Required	Required until all lesions are healed	Required until examined for lesions
†Leptospirosis	Not Required	Not Required	Not Required
Lymphogranuloma Venereum	Optional with health officer	Optional with health officer	If suspected of being infected—optional with health officer
*Malaria	Not Required	Required to be screened for duration of fever	Not Required
Measles	Not Required	Required for 7 days after rash appears	Not Required

*Diagnostic laboratory service is available for these diseases from the State Laboratory of Hygiene.

†To be reported effective January 1, 1952.

<i>Disease Required To Be Reported</i>	<i>Placarding For Period of Isolation Or Quarantine</i>	<i>Isolation of Patient</i>	<i>Quarantine of Contacts</i>
*Meningococcus Infection	Required	Required for 14 days	Required for 14 days from last exposure or until prophylactic treatment has been given, unless released by health officer
*Paratyphoid Fever	Required	Required until 2 stool cultures at 5-day intervals are negative	Not Required
Plague	Required	Required for duration of the disease	Required for 14 days from last exposure
Poliomyelitis	Required	Required for 7 days	Required for contacts under 16 years for 7 days from last exposure
Psittacosis	Required	Required for duration of the disease	Required for 14 days from last exposure
†Q Fever	Not Required	Not Required	Not Required
*Rabies	Not Required	Required for duration of the disease	Not Required
*Rocky Mountain Spotted Fever	Not Required	Not Required	Not Required
Scarlet Fever	Required	Required until adequately treated or for 14 days and until discharges have ceased	Required for susceptible contacts under 16 years for 7 days from last exposure or until prophylactic treatment has been given
Septic Sore Throat	Required	Required for duration of the disease	Required for contacts under 16 years for 7 days from last exposure
Smallpox	Required	Required until all lesions are healed	Required for all contacts until vaccinated or revaccinated
†Staphylococcus Food Poisoning	Not Required	Not Required	Not Required
*Syphilis	Optional with health officer	Optional with health officer	If suspected of being infected—optional with health officer
†Tetanus	Not Required	Not Required	Not Required
Trachoma	Optional with health officer	Optional with health officer	Not Required
†Trichinosis	Not Required	Not Required	Not Required
*Tuberculosis	Optional with health officer	Optional with health officer	If suspected of being infected—optional with health officer
*Tularemia	Not Required	Not Required	Not Required
*Typhoid Fever	Required	Required until 2 stool cultures at 5-day intervals are negative	Not Required
*Typhus Fever, Endemic	Not Required	Not Required	Not Required
*Typhus Fever, European	Required	Required until 2 days after fever subsides	Required for 14 days from last exposure
*Undulant Fever	Not Required	Not Required	Not Required
Whooping Cough	Required	Required for 21 days after onset of cough	Required for susceptible contacts for 14 days from last exposure
Yellow Fever	Not Required	Required to be screened until 6th day	Not Required

Instructions for Reporting

- Physicians and other persons are required to report these diseases as follows:
 - In case one or more physicians are in attendance, the first physician to determine the nature of the infection is responsible for reporting.
 - In case no physicians are in attendance, school superintendents or teachers, parents, guardians, or heads of households, nurses, owners of dairies or other food-handling establishments, and superintendents of public and private institutions, hospitals, or jails are responsible for reporting cases of these diseases in persons coming under their supervision.
- All reports of these diseases from persons required to report should be mailed within 24 hours after diagnosis to the health officer of the county or city in which the case is located at the time of the report.
- When the local health officer receives reports of cases that were located within his jurisdiction at the time of report and that were also located either within his jurisdiction or at some point outside North Carolina at the time of onset of the disease, he should forward such reports within 24 hours directly to the Division of Epidemiology, State Board of Health, Raleigh, N. C.
- When the local health officer receives reports of cases that were located within his jurisdiction at the time of the report but that were located in another county or city in North Carolina at the time of onset of the disease, he should forward such reports within 24 hours directly to the local health officer of the county or city in which the case was located at the time of onset. A copy of such reports, marked "copy," should be mailed to the State Board of Health at the same time. Reports of the venereal diseases should be forwarded by the local health officer directly to the State Board of Health regardless of place of onset.**
- The local health officer should forward to the State Board of Health within 24 hours all reports received from other health officers.

*Diagnostic laboratory service is available for these diseases from the State Laboratory of Hygiene.

**Reports of all diseases, except venereal diseases, are recorded by the Division of Epidemiology by place of residence. The venereal diseases are recorded by place of report.

†To be reported effective January 1, 1952.

BULLETIN BOARD

WATTS HOSPITAL MEDICAL AND SURGICAL SYMPOSIUM

The ninth annual Watts Hospital Medical and Surgical Symposium will be held at the Carolina Theater in Durham, February 13 and 14. The following program has been arranged:

Wednesday, February 13

10:45 a.m.

Address of Welcome—Sample B. Forbus, Director of Watts Hospital

Clinicopathological Conference — Shields Warren, M.D., Professor of Pathology, Harvard Medical School; George Van S. Smith, M.D., Professor and Head of the Department of Gynecology, Harvard Medical School; and Hugh F. Hare, M.D., Radiologist, Lahey Clinic, Boston

2 p.m.

Choice of Anesthetic Agents in Certain High Risk Patients — Albert Faulconer, Jr., M.D., Mayo Clinic, Rochester, Minnesota

3 p.m.

Breast Cancer Complicated Pregnancy — Frank E. Adair, M.D., Attending Surgeon and Executive Officer, Memorial Hospital, Associate City Professor of Surgery, Cornell University Medical School, New York

4:15 p.m.

The Acute Radiation Syndrome and its Therapy — Shields Warren, M.D.

8 p.m.

Panel Discussion on Endocrinology—Edwin C. Hamblen, M.D., Professor of Endocrinology, Duke University Medical School, Durham, Moderator
The Classification of Metabolic Bone Disease in Terms of Pathologic Physiology — Edward C. Reifstein, Jr., M.D., Oklahoma Medical Research Institute and Hospital, Oklahoma City

The Male Climacteric—E. Perry McCullagh, M.D., Head of the Section on Endocrinology and Metabolism, Cleveland Clinic, Cleveland, Ohio
Endocrine Factors Involved in the Production of Benign Lesions of the Breast — Nathan A. Womack, M.D., Professor of Surgery, University of North Carolina Medical School
The Use of Hormones in Cases of Advanced Breast Cancer—Frank E. Adair, M.D.
Progesterone Metabolites in Pregnancy — George Van S. Smith, M.D., Harvard Medical School

Thursday, February 14

10 a.m.

Recent Advances in the Recognition and Management of Renal Insufficiency—Charles H. Burnett, M.D., Professor of Medicine, University of North Carolina Medical School

11 a.m.

The Treatment of Osteoporosis, the Bone Disease of Aging Persons, With Steroid Hormones—Edward C. Reifstein, Jr., M.D.

12:15 p.m.

Clinical Application of Endocrine Therapy in Menstrual Irregularities—George Van S. Smith, M.D.

2 p.m.

A Concept for the Extension of Surgery in the Treatment of Malignancy, Nathan A. Womack, M.D.

3 p.m.

The Clinical Value of Testosterone—E. Perry McCullagh, M.D.

4:15 p.m.

Cancer of the Thyroid—Hugh F. Hare, M.D.

AMERICAN COLLEGE OF PHYSICIANS REGIONAL MEETING

The 1951 regional meeting of the American College of Physicians was held at Duke University School of Medicine on December 6. Participating in the program were Drs. MacDonald Dick, George S. Sutherland, Philip Handler, Eugene A. Stead, Jr., George Margolis, and John B. Hickam, all of Durham; Dr. Richard L. Lyman of Nashville, Tennessee; Dr. Paul F. Whitaker of Kinston; Drs. Robert L. McMillan and George T. Harrell of Winston-Salem; Dr. S. M. Bittinger of Oteen, and Dr. Charles H. Burnett of Chapel Hill. Speaker of the Day was Dr. Cyrus C. Sturgis, regent, American College of Physicians and professor and chairman of the Department of Internal Medicine, University of Michigan Medical School, Ann Arbor. Dr. Elbert L. Persons is governor of the college for North Carolina.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. P. A. Owren, professor of medicine at the University of Oslo, Norway, gave a lecture on "Physiology of Blood Clotting and Hemorrhagic Diseases" to the faculty and student body on January 25.

* * *

Dr. George D. Penick, instructor in pathology, described his studies on "Impaired Coagulation Following Total Body Irradiation" to the Southeastern Section of the Society of Experimental Biology and Medicine in Atlanta on January 17.

* * *

Dr. Charles H. Burnett, professor of medicine, discussed "Management of Diabetes" before the Forsyth County Medical Society on January 8.

* * *

Research grants for the present year include: Department of Physiology—\$13,250 to Dr. John H. Ferguson from the U. S. Public Health Service to continue a blood coagulation research project; \$6,000 to Dr. A. T. Miller from the U. S. Public Health Service to continue a study of influence of obesity on response to stress; \$5,500 to Dr. E. P. Hiatt from the National Heart Institute for a continuation of a study investigating action of alkaloids on the cardiovascular system. Department of Pathology—\$18,000 to Dr. K. M. Brinkhous from the National Blood Program for studies on antihemophilic factor and platelets; \$15,900 to Dr. K. M. Brinkhous from the U. S. Public Health Service for studies on blood coagulation and antihemophilic activity of plasma; \$5,000 from the U. S. Public Health Service in support of a cancer teaching program to improve the teaching of pathology of neoplasms to medical students. Department of Pharmacology — \$5,000 to Dr. Thomas C. Butler from the U. S. Public Health Service for an investigation of the metabolic fate of certain N-substituted derivatives of barbituric acid and hydantoin used in the treatment of epilepsy; \$5,900 to Dr. T. Z. Csaky from the U. S. Public Health Service for a study of the metabolism and the physiological utilization and actions of methyl ethers of monosaccharides. Department of Biological Chemistry — \$4,500 from the Atomic Energy Commission to Dr. James C. Andrews and M. K. Berkut for an investigation of the influence of fluorides on the calcification mechanism in bone and tooth structure; \$3,500 to Drs. J. Logan and Elinor M. Irvin from The Research Corporation for

a project entitled "The isolation and physicochemical characterization of nucleic acids and nucleoproteins; their interactions with acridine and quinoline derivatives." Department of Anatomy—\$4,000 to Dr. C. W. Hooker from the Jane Coffin Childs Memorial Fund for Medical Research to continue a study of "Testicular tumors in mice and the problem of the nature of the tumor cell"; \$15,545 from the U. S. Atomic Energy Commission to Dr. C. D. Van Cleave and Dr. C. T. Kaylor for the continuation of their radioautographic study of the localization of radioberyllium in the tissues of the rat.

FORSYTH COUNTY MEDICAL SOCIETY

The Forsyth County Medical Society held a dinner meeting at the Robert E. Lee Hotel on December 11. Dr. Eben Alexander of Winston-Salem spoke on "The Diagnosis and Treatment of Intracranial Aneurysms."

CARTARET COUNTY MEDICAL SOCIETY

The Carteret County Medical Society held its regular monthly meeting at the Morehead City Hospital Monday night, December the 10th, Dr. C. S. Maxwell, president, presiding.

This was the time for the election of officers for the coming year. Dr. M. B. Morey, Morehead City, was elected president, and Dr. Luther Fulcher, Beaufort, was elected secretary-treasurer. Dr. N. Thomas Emmett, county health officer, continues as corresponding secretary. Dr. B. F. Royal was elected to the House of Delegates of the State Medical Society, with Dr. K. P. B. Bonner alternate.

Dr. S. W. Thompson presented the matter of the local society inviting the Seaboard Medical Society (composed of physicians in Virginia, North Carolina, and South Carolina) to hold its next annual meeting, in November, 1952, in Morehead City. Dr. Thompson explained that Dr. James Graham Ramsey of Washington, North Carolina, had recently been elected president of the Seaboard Society and that it was customary for the meeting of the society to be held in the home town of the president; but as Washington did not have sufficient hotel facilities, the officers of the Seaboard Society desired very much to hold the meeting in Morehead City. The Carteret County Society unanimously approved the motion that the Seaboard Society be invited to Morehead City.

The matter of permanent arrangements for x-ray and fluoroscopic work for the Morehead City Hospital was discussed, final decision to await the next meeting of the society.

Visitors were Dr. A. L. Daughtridge of Rocky Mount, and Dr. James H. R. Booth, Elizabeth City.

N. THOMAS ENNETT, M.D.
Corresponding Secretary

NORTH CAROLINA ALCOHOLIC REHABILITATION PROGRAM

A family guide on alcoholism, written and published by the North Carolina Alcoholic Rehabilitation Program, is now ready for statewide distribution, it was announced recently by S. K. Proctor, executive director of the ARP.

As part of the ARP educational services, the guide can be secured by writing the North Carolina Alcoholic Rehabilitation Program, Box 9118, Raleigh, North Carolina.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

For the first time in its 30-year history, the National Society for Crippled Children and Adults, the Easter Seal Society, will hold its annual convention on the West Coast in 1952, it has been announced by Lawrence J. Linck, executive director. The convention will be held in San Francisco, October 25 through 30.

(BULLETIN BOARD CONTINUED ON PAGE 52)

Pontocaine Spinal Anesthesia Prolonged by Fifty Per Cent

Prolongation of Pontocaine spinal anesthesia by approximately 50 per cent through the addition of the vasoconstrictors Neo-Synephrine or epinephrine is reported by Drs. John J. Bonica, Philip H. Back-up and W. Howard Pratt of the Tacoma General Hospital in *Anesthesiology* (12:431, 1951).

Pontocaine itself, they point out, gives comparatively long-lasting spinal anesthesia which can be intensified by the vasoconstrictors. The paper is based on a controlled study, in which 631 nerve blocks were administered to 487 patients, both for therapeutic purposes and for a wide variety of surgical procedures.

New B Complex Preparation Introduced By Winthrop-Stearns

Winthrop-Stearns, Inc., has introduced a new injectable vitamin B complex preparation called Betasynplex with Vitamin B₁₂ found highly effective for multiple vitamin therapy in cases of deficiency of B complex factors. The preparation has proved especially useful for patients who fail to respond to oral administration.

In addition to vitamin B the product contains five important factors of vitamin B complex which have been synthesized: thiamine, riboflavin, nicotinamide, calcium pantothenate, and pyridoxine. Vitamin B₁₂, a highly potent constituent of liver extract, is the liver's principal anti-pernicious anemia factor, and is most effective by injection. It stimulates the production and maturation of red blood cells in the bone marrow.

Betasynplex comes in a stable, instantly soluble Niphanoid form in single dose ampuls and multiple (10 dose) vials. Manner of use is to add 2 cc. of sterile distilled water to a single dose ampul, or 20 to 30 cc. to a 10 dose vial. The solution which forms almost immediately is injected either intramuscularly or intravenously.

Winthrop-Stearns Introduces Two Heavy Pontocaine Solutions

Winthrop-Stearns Inc., pharmaceutical manufacturer, has announced introduction of two new forms of a heavy solution of Pontocaine Hydrochloride for spinal anesthesia. They consist of a 5 cc. ampul containing 0.3% Pontocaine Hydrochloride in 6 per cent dextrose solution and a 2 cc. ampul containing 0.2 per cent Pontocaine Hydrochloride in 6% dextrose solution. They come packed in boxes of tens.

A heavy solution of Pontocaine Hydrochloride in dextrose is widely used to produce prolonged anesthesia for various types of major operations. It has also proved particularly suitable for use in obstetrics to produce anesthesia during delivery.

BOOK REVIEWS

Antibiotic Therapy. By Henry Welch, Ph.D., and Charles N. Lewis, M.D. 566 pages. Price, \$10.00. Washington, D. C.: The Arundel Press, 1951.

During the past ten years, the literature dealing with the antibiotic drugs has been voluminous and widely dispersed in American and foreign periodicals. In a number of instances, a critical appraisal of the material has been difficult for the reader without special technical knowledge. A concise, well organized, well indexed, and up-to-date summary of much of this information (through 1950) is presented in the new book *Antibiotic Therapy*. The authors, as members of the Antibiotic Division of the Food and Drug Administration, have been responsible for the analysis of data concerning all antibiotic preparations prior to governmental certification and commercial distribution. In this unique position, they are well qualified to bring together and evaluate the mass of information on the antibiotic drugs now in use.

The book is divided into two major portions. The first section consists of a brief review of the development of important antibiotics, their pharmacologic properties, their antimicrobial spectra, and a description of the numerous dosage forms now available. The second section of the book presents clinical experience in the use of the antibiotic drugs by diseases. A representative bibliography is appended to each chapter.

The section on the pharmacology of the antibiotic agents is particularly well presented, and contains much valuable and readily accessible information. The clinical section stresses the result of specific treatment; it is hoped that the reader will not be anesthetized by this emphasis and overlook the importance of supportive measures in the therapy of the infectious diseases.

In the words of Dr. Chester S. Keefer, "It is a pleasure to commend to the reading medical public *Antibiotic Therapy* by Henry Welch and Charles Lewis."

An Atlas of Normal Radiographic Anatomy. By Isoadore Meschan, M.D. 593 pages. Price, \$15.000. Philadelphia: W. B. Saunders Company, 1951.

This publication, in one volume, is unique in being one of the few published works which correlate the normal anatomy, the actual radiograph, and the positioning of the patient. The different systems of the body are discussed systematically, and the information correlated with clarity.

The author uses a direct, clear, conversational style, which, in the reviewer's opinion, is much more to be desired than the dry cataloguing of descriptive data. This work is not only readable, but so organized that the information is easily found. The material includes all structures. The illustrative material is generous in amount, excellent in quality, and apt in selection.

This work should be in the library of all radiologists. Its use, however, is not limited to radiologists, for general practitioners or any other physician making roentgen studies will find it a reliable source of information for daily reference.

Allergy in Relation to Pediatrics. Edited by Bret Ratner, M.D. 240 pages. Price, \$3.75. Saint Paul, Minnesota: Bruce Publishing Company, 1951.

This excellent group of articles written by the leading pediatric allergists of the country represents a panel discussion held under the auspices of the American College of Allergists, and is an official publication of that group. Though all fields of pediatric allergy are covered, with basic chapters on the genesis of allergy, the bulk of the book is on the practical problems of allergic children as encountered in a doctor's practice.

There has been no attempt to go into great detail regarding the technical procedures involved in the preparation of antigens and the like, but this in no way detracts from the usefulness of the book. Most of the chapters are well written, by authors whose names constitute the genuine seal of authority. This reviewer has long felt the need for a book such as this, which could be recommended to physicians as an aid in their everyday problems. It is full of practical information, and its conversational tone makes it easy to read. It can be recommended unhesitatingly for wide distribution among pediatricians, general practitioners, and students.

Psychosomatic Gynecology: Including Problems of Obstetrical Care. By William S. Kroger, Assistant Clinical Professor of Obstetrics and Gynecology, Chicago Medical School; Attending Obstetrician and Gynecologist, Edgewater Hospital, Chicago; and S. Charles Freed, M.D., Adjunct in Medicine, Mount Zion Hospital, San Francisco, California. 487 pages. Price, \$8.00. Philadelphia and London: W. B. Saunders Company, 1951.

In this book the authors attempt to present the psychodynamics of certain problems occurring in gynecology and obstetrics. Their stated purpose is to provide a workable knowledge of the psychodynamics of disease for the physicians specializing in obstetrics and gynecology. Briefly, the psychodynamic patterns, as presented in the book, are fundamentally those of Freud. The first portion of the book deals with the psychosomatic aspects of the fetus and infant. In this section the effects of the prenatal care, as well as the care of the mother during labor and delivery and during the puerperal period, are considered from the viewpoint of the ultimate effect on the child. This is followed by a discussion of psychosexual development of the infant, in which the original Freudian theories are outlined.

The second part deals with the psychosomatic aspects of the mother during pregnancy, and hinges largely upon the work of Grantly Dick Read, and the use of hypnosis during labor. It covers, in addition, nausea and vomiting, ptalism, abnormal appetite, lactation, pseudocyesis, dysmenorrhea, premenstrual tension, and so forth.

In part four, some of the more common gynecologic psychosomatic problems are discussed, including contraception, sterility, frigidity, dyspareunia, low back pain, pelvic pain, menopause, pruritus, and the congestion fibrosis syndrome. The book concludes with a section on methods of diagnosis and treatment.

One of the best features of the book is the excellent and well placed bibliography, which makes it possible to check references readily. Unfortunately, the book falls far short of its original aim. The average practitioner of obstetrics and gynecology certainly will not be sympathetic with the psychodynamic explanations given. For instance, in

a chapter devoted to preeclampsia and eclampsia it is suggested that the etiology may well be psychosomatic. Another chapter is entitled "Emotional Spontaneous Abortion." The extreme is reached in the discussion of cystocele, stress incontinence and fibroids, in which it is suggested that these too may be of psychic origin. Single case histories are used as proof of the author's contentions—a technique which makes reading enjoyable but unscientific. The cases are invariably of a bizarre nature.

Strangely enough, there is no discussion of postpartum depression, which is a fairly common disorder. Similarly, the influence of organic disease on the patient's psyche is not given its due importance. A recent editorial in the *New England Journal of Medicine* (November 15, 1951) entitled "Stark Unreality" hits the nail pretty well on the head when it states: "The movement is far enough out of critical hands to permit the gullible, unknowing public to believe that it can worry itself into heart disease, hypertension, and thyrotoxicosis—in addition to peptic ulcer—or, shortly, if divinations go on apace, into almost any disease that has previously been classified as predominantly of organic or exogenous origin. Although popular and semi-scientific journalism are inculpated, the too enthusiastic and uncritical psychosomaticists themselves are primarily responsible."

The authors freely admit that much of the material in the book will be controversial. It would seem better to use the words "highly speculative."

The Specialties in General Practice. Edited by Russell L. Cecil, M.D., Professor of Clinical Medicine, Cornell University Medical College, New York City. 818 pages. Price, \$14.50. Philadelphia and London: W. B. Saunders Company, 1951.

Another tribute to the importance of the family doctor is this volume written by 14 specialists especially for general practitioners. That it was brought out under the capable editorship of Dr. Russell L. Cecil assures it a place in medical literature. The subjects discussed are minor surgery, orthopedic surgery, fractures and dislocations, urology, diseases of the anus, rectum and colon, gynecology, obstetrics, pediatrics, ophthalmology, diseases of the nose and throat, diseases of the larynx, bronchi and esophagus, otology, dermatology and syphilology, and psychiatry.

In such a work as this it is difficult to secure proper balance, and the length of some of the sections is not a measure of their importance. For example, gynecology is allotted only 21 pages, orthopedic surgery with fractures and dislocations, 115 pages. Barely more than half a page is devoted to the important subject of the menopause and its treatment.

There are many physicians who would not agree with the statement that identical preparations are required for a proctoscopic and for an x-ray examination of the colon, but who would concur in the opinion of Bockus that special preparation for a proctoscopic examination is seldom necessary. The excellent discussion of habitual constipation, however, leaves no room for argument.

The chapters on dermatology and syphilology, and on psychiatry are particularly good, though colored plates would have made some of the skin lesions appear to better advantage. The section on interviewing and on the management of the neurotic patient should be most helpful.

The book can be heartily recommended to the general practitioner as well worth buying and keeping close at hand, to be referred to frequently.

De Re Medica. 643 pages. Published by Eli Lilly and Company for distribution to doctors, 1951.

As stated in the dedication to the medical profession, this book "emulates the purpose and title of the original classic work of Celsus, . . . first published in Florence in 1748." It lives up to its avowed purpose of presenting "therapeutic suggestions in common diseases."

The first 280 pages are devoted to "Common Diseases: Suggested Treatment." In the next 236 pages, "Drugs—Actions and Uses"—are discussed. Section 3 comprises forty-five excellent colored plates showing anatomic dissections, various skin lesions, the blood, flocculation tests for syphilis, pertussis agglutination test, gastric analysis, and urine test charts. Sections 4, 5, and 6 are devoted to laboratory tests, poisons and their antidotes, and useful tables. Only thirty-six pages—a comparatively modest proportion of the entire book—in Section 7 is a selected list of Lilly products. The final section is a seventeen page index.

The book may be had from Eli Lilly and Company, Indianapolis, by any doctor for the asking, or from one of the detail men representing that company. Since so much territory is covered, much of the discussion is necessarily sketchy, and it should not be accepted as the equivalent of a standard practice of medicine text. The description of pancreatitis, for example, gives only the comparatively rare suppurative or gangrenous form, and omits the far more common and less serious pancreatic edema.

For the most part, however, the information appears to be accurate and certainly is readily accessible. The book is well worth keeping at hand for quick reference.

Diodrast Aids Surgeons in Diagnosing Brain Tumors

An effective technique in the diagnosis of brain tumors, intracranial aneurysms and cerebral vascular accidents, involving use of the radiopaque compound Diodrast, is described by Dr. Sidney W. Gross, Mt. Sinai Hospital, New York, in charts prepared for exhibition at medical society meetings.

The technique, which is now being widely employed in neurosurgical clinics whenever such tumors are suspected, was described in detail at the recent meeting of the American Medical Association.

When Diodrast is injected into the common carotid artery, the blood vessels in the head, supplied by this artery, are made visible in x-rays. Brain tumors change the normal pattern of the blood vessels.

Citing the advantages of this method over ventriculography, Dr. Gross said that the tumor is often directly visualized by "staining" with Diodrast, or by the outline of its vascular pattern. Frequently, he added, even the nature of the tumor may be predicted from the character of its vascular pattern.

JOURNALS WANTED

The publishers of the **NORTH CAROLINA MEDICAL JOURNAL** are in need of additional copies of the **JOURNAL** for July, 1951. Thirty cents will be paid for each copy of this issue which is received in good condition at Carnichael Printing Company, 118 West Third Street, Winston-Salem 1, North Carolina.

BULLETIN BOARD

(CONTINUED FROM PAGE 49)

FEDERAL SECURITY AGENCY

Public Health Service

Nine laboratory refresher courses covering the serology of syphilis, the *Treponema pallidum* immobilization test, and the laboratory diagnosis of venereal disease to be conducted at the Venereal Disease Research Laboratory in Chamblee, Georgia, during 1952, were announced recently by Dr. Theodore J. Bauer, chief of the Public Health Service's Division of Venereal Disease.

The courses start in January and are open to senior technicians and to laboratory directors throughout the United States and the Territories who are presently employed in the field.

Applications for these courses must be approved by the state health officer or state laboratory director of the region from which they are sent and should be addressed to: Director, Venereal Disease Research Laboratory, Division of Venereal Disease, Box 185, Chamblee, Georgia.

* * *

Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, Federal Security Agency, has called to the attention of United States bird owners and pet shop operators newly adopted changes in Federal quarantine restrictions on interstate shipments and foreign importations of parrots, parakeets, love birds, and other members of the psittacine bird family.

Changes in the quarantine regulations covering importations of the birds from abroad became effective December 15, with their publication in the Federal Register, Dr. Scheele said.

Changes in the regulations governing interstate shipments went into effect on November 15 and appear in the Federal Register of that date.

Dr. Scheele explained that the quarantine restrictions were imposed originally because psittacine birds are known carriers of psittacosis, or "parrot fever," an acute respiratory disease of varying severity which is readily transmittable to humans.

Changes in the Foreign Quarantine Regulations include (1) removal of the eight-month minimum age limit on birds imported for use by zoos and research institutions; (2) a reduction from two years to four months in the time birds imported as pets must be in the owner's possession prior to entry into this country; (3) removal of the requirement that imported pet birds must be transported to the owner's residence immediately upon arrival in this country; and (4) the addition of a requirement of an affidavit that birds imported as pets are not to be resold and that no other birds have been brought into the country as pets by the owner in the preceding year.

Changes in the Interstate Quarantine Regulations (1) remove all Federal restrictions on shipments of psittacine birds from psittacosis-free areas in the United States; and (2) now prohibit the shipment of the birds from areas where the Surgeon General has determined that psittacosis infection is dangerous to the public health.

Dr. Scheele said none of the changes affects the standing requirement that interstate shipments of psittacine birds must be covered by a permit when it is required by the health department of the State of destination.

Dr. Scheele said the changes in the quarantine regulations followed a Public Health Service study of the nation's psittacosis problem. Among other findings, the study disclosed that psittacosis is no

longer a major public health problem in this country and that it is found among birds other than members of the psittacine family.

Pet psittacine birds in the United States usually include parrots, Amazons, Mexican double heads, parakeets, African grays, cockatoos, love birds, lorries, and lorikeets.

DEPARTMENT OF THE ARMY

Dr. Francis G. Blake, wartime adviser to the President on problems of epidemic disease and former dean of the Yale Medical School, has been named civilian Technical Director of Medical Research in the Office of the Army Surgeon General, the Department of the Army announced recently. He assumed his new duties January 2.

VETERANS ADMINISTRATION

Dr. Derrick T. Vail, professor and chairman of the Department of Ophthalmology at Northwestern University, will become chairman of the Special Medical Advisory Group of the Veterans Administration in January, 1952, VA announced.

Dr. Vail will succeed Dr. Charles W. Mayo of the Mayo Clinic at Rochester, Minnesota, who has been chairman of the group since it was organized six years ago. Dr. Mayo will continue as a member.

Other new officers of the group are Dr. Franklin D. Murphy, chancellor of the University of Kansas, vice chairman, and Dr. Brian B. Blades, professor of surgery at George Washington University, secretary.

Dr. Vail, in addition to being professor and chairman of the Department of Ophthalmology at Northwestern University, is editor of the American Journal of Ophthalmology.

Institute Heads Cited by N.Y.A.S.

The New York Academy of Sciences, fourth oldest scientific society in the United States, has elected Dr. Maurice L. Tainter, director of Sterling-Winthrop Research Institute, as a Councilor for 1952-54. The Academy has also elected Dr. C. M. Suter, associate director of the research institute, to fellowship.

The New York Academy of Sciences was organized in 1817, and its present membership is located in all 48 states as well as in 40 foreign countries.

Warning to Drinkers

A recent study by Dr. Theron Randolph, one of several eminent specialists speaking at the current congress of the International Association of Allergists in Zurich, Switzerland, embodies for both the confirmed drinker and the "one-or-two-snifters" man this warning:

Don't drink beer if you are allergic to barley; don't drink wine if you are allergic to grapes; don't, in fact, drink anything if you are allergic to the grain, fruit or cereal from which it derives. To do so, says Dr. Randolph, will be to precipitate promptly and in intensive form the old allergy symptoms. Moreover, the physician continues, if such drinking continues, the imbibitor will suffer two different but coalescing hangovers—the usual one from alcohol itself, and a second from the allergy involved.

Microfilmed copies of the NORTH CAROLINA MEDICAL JOURNAL are available and may be ordered from University Microfilms, 312 North First Street, Ann Arbor, Michigan.

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SYMPOSIUM ON BRONCHOPULMONARY LESIONS

BRONCHOPULMONARY SEGMENTATION AND ITS CLINICAL IMPORTANCE

GEORGE J. BAYLIN, M.D.*

and

JOHN E. WEAR, M.D.**

DURHAM

The lungs are divided into major lobes, but each lobe is so subdivided that there exist bronchopulmonary segments or units which are frequently involved in a selective manner. A proper understanding of roentgenographic changes necessitates a thorough understanding of this basic anatomy lest one unwarily be led into serious error.

Each of the major lobes has a rather characteristic bronchial pattern, so that under various abnormal circumstances they will present fairly distinctive x-ray findings. The divisions of the bronchi, and hence the pulmonary segments, are of more than academic interest, for we now know that some disease processes tend to involve certain bronchopulmonary segments with greater frequency than do others. Moreover, the thoracic surgeon must have accurate geographic information when he prepares to remove a part or parts of a lobe or lung.

Divisions of the Major Bronchi

The only way to demonstrate the major bronchi and their divisions in the living patient is to instill an opaque dye, such as lipiodol or the new absorbable contrast medium⁽¹⁾, into the bronchial tree. This procedure is not always feasible or desirable, but is often obligatory. The normal tree is readily visualized in this manner (fig. 1). However, in order to delineate adequately

all the divisions, a knowledge of the way in which the trunks branch is necessary, so that the dye may be properly directed. Adequate filling depends on putting the patient into the different strategic positions, so that the dye reaches each segment bilaterally.

The right bronchial tree

The bronchus to the right upper lobe runs upward and laterally at 90° for 1 cm., and then divides into posterior, anterior, and apical segments. Toward the lateral aspect, the posterior and anterior branches supply divisions to the large axillary subsegments; hence these areas receive a strategic dual bronchial supply, a feature which was well detailed by Brock⁽²⁾, Krause⁽³⁾, and others.

The middle lobe is supplied by a division which arises independently from the stem bronchus, and, of great importance, the bronchus courses in an anterior direction for a short distance. It then divides into a medial and a lateral segment. These two branches then divide into superior and inferior divisions, as recently described by Boyden⁽⁴⁾.

The right lower lobe bronchus is for a short distance a direct continuation of the stem bronchus, but it soon divides into a series of very strategic components. From the posterior wall, coursing upward at a slight angle, comes the dorsal or apical division. From this arises, or frequently exists as a separate branch just below it, the so-called subdorsal division. These both supply the posterior medial upper portions of the lobe. The next large branch is the posterior basal division; then, in order, are the middle basal, lateral basal, and anterior basal segments. Each supplies a very distinct area of lung.

The left bronchial tree

The left lower lobe bronchus is divided into essentially the same branches, except that the middle and anterior segments are

Presented to the Section on Radiology, Medical Society of the State of North Carolina, Pinehurst, May 9, 1951.

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**Trainee, National Cancer Institute.

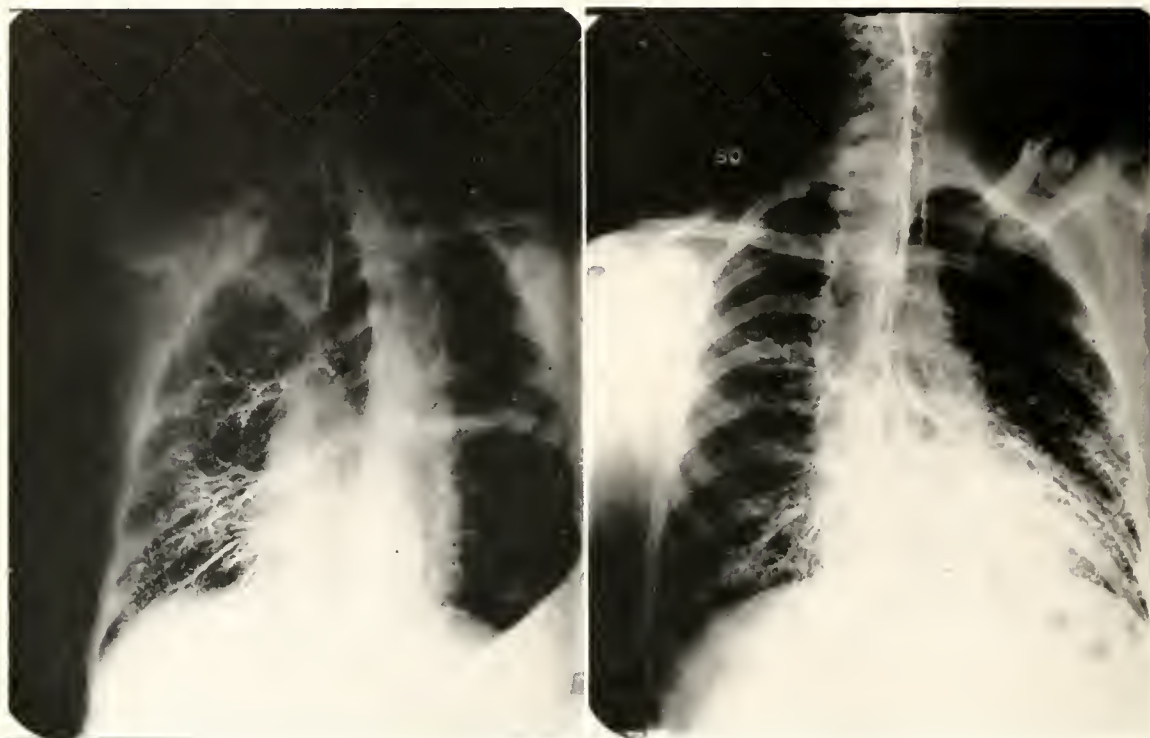


Fig. 1. Right and left anterior oblique films of the chest following the injection of lipiodol, which demonstrates the right and left bronchial tree respectively.

supplied by one division, which subdivides peripherally.

The left upper lobe bronchus differs significantly in its branching from the right upper lobe. It is formed from a bifurcation of the main bronchus, and runs laterally for about 1 cm., at which point it divides into an ascending and a descending branch. The former subdivides into anterior and apical-posterior trunks, which supply the upper portion of the lobe. The descending branch, which is known as the lingular branch, runs down and forward and laterally for about 1 cm., and then subdivides into superior and inferior branches. These go to the anterior inferior half of the upper lobe.

Variations in the basic pattern

Figure 2 shows in diagrammatic fashion the basic pattern of the right and left bronchial tree. This is the usual picture. Certain significant variations, not detailed, occur. We must be familiar with a few very common variations, for they often help explain certain otherwise puzzling findings. The most frequent variant in the upper lobes is the presence of a supernumerary bronchus on the right, originating 1.5 cm. above the

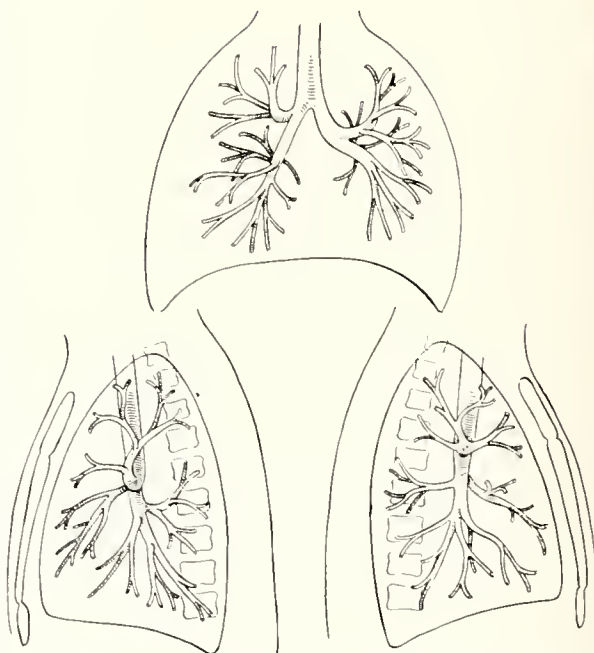


Fig. 2. Diagrammatic sketches of the bronchial tree as seen in the P.A. and lateral projections.

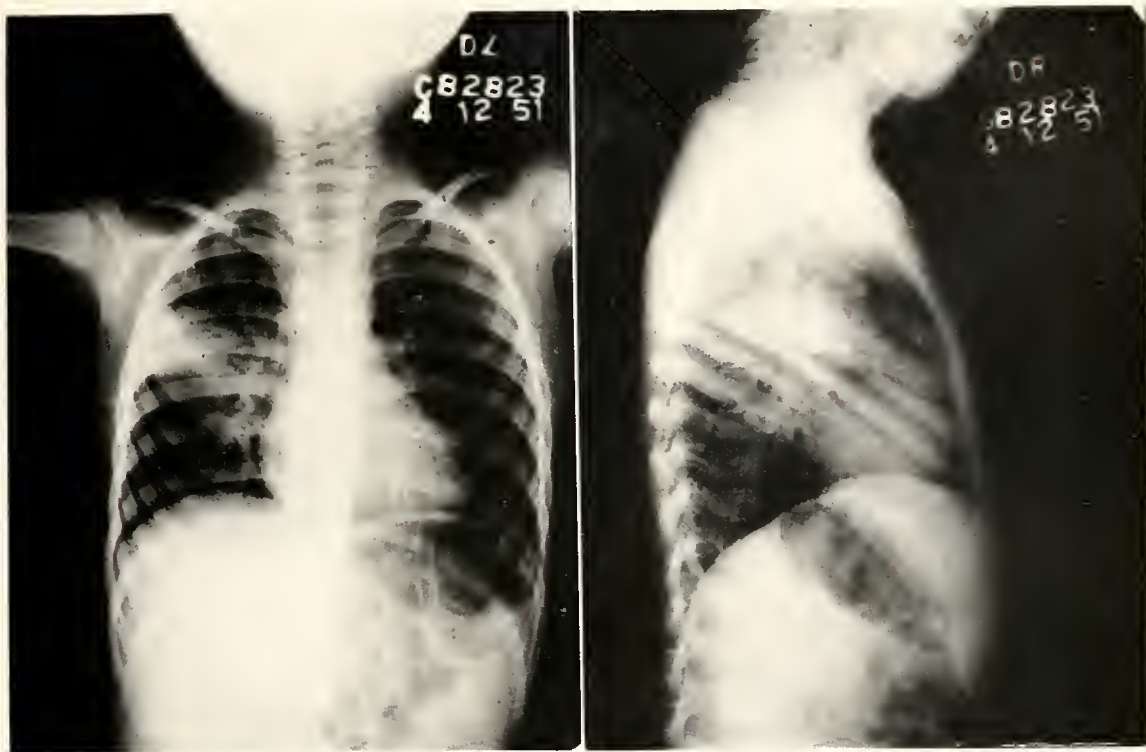


Fig. 3. PA and right lateral projections of the chest demonstrating involvement of the anterior and posterior subsegments or axillary divisions of the anterior and posterior segment of the right upper lobe.

upper lobe stem. On the left side, there is often fusion of the anterior and lingular branches. In the lower lobes a subapical or subdorsal bronchus occurs rather frequently. Even more important, some major aberrations in the bronchopulmonary anatomy are associated with major vascular anomalies, and unless the surgeon, prior to resection, is aware of the variation, his task may be greatly complicated by troublesome bleeding⁽⁵⁾. Aberrant segments or lobes frequently are supplied by systemic arteries which may be of extreme importance to the surgeon. The only way radiologists can evaluate correctly is to delineate the bronchial tree and emphasize any major variation. Another method would be by vascular visualization, but this is certainly not, as yet, a simple method of study.

Interpretation of Lung Shadows

The lung shadows are composed primarily of the vascular components, but there is no simple way to detail the vessels. Ramsay⁽⁶⁾, has demonstrated the intersegmental nature of the veins of the lungs and, in an important study, showed that these veins, once

located at the hilus, can be followed peripherally as accurate guides to the intersegmental divisions.

Brock and others have shown that in the upper lobes the posterior segments are statistically more often involved with inflammatory processes than with malignant disease. Conversely, the anterior segments are more frequently the seat of malignant disease. Hence, it is apparent that the portion of an upper lobe that is involved influences to some extent our interpretation of upper lobe shadows. That in any individual case the disease process cannot be unequivocally identified in each instance must be admitted; yet if we constantly watch for the anatomic distribution of disease of the lungs, we will think more clearly, perhaps, and be more exacting in our approach.

The Diagnostic Importance of Bronchopulmonary Segmentation

The previously mentioned dual bronchial supply of the axillary subsegments of the upper lobes is of diagnostic importance. By virtue of this supply it is understandable that occlusion of either sub-bronchus cannot

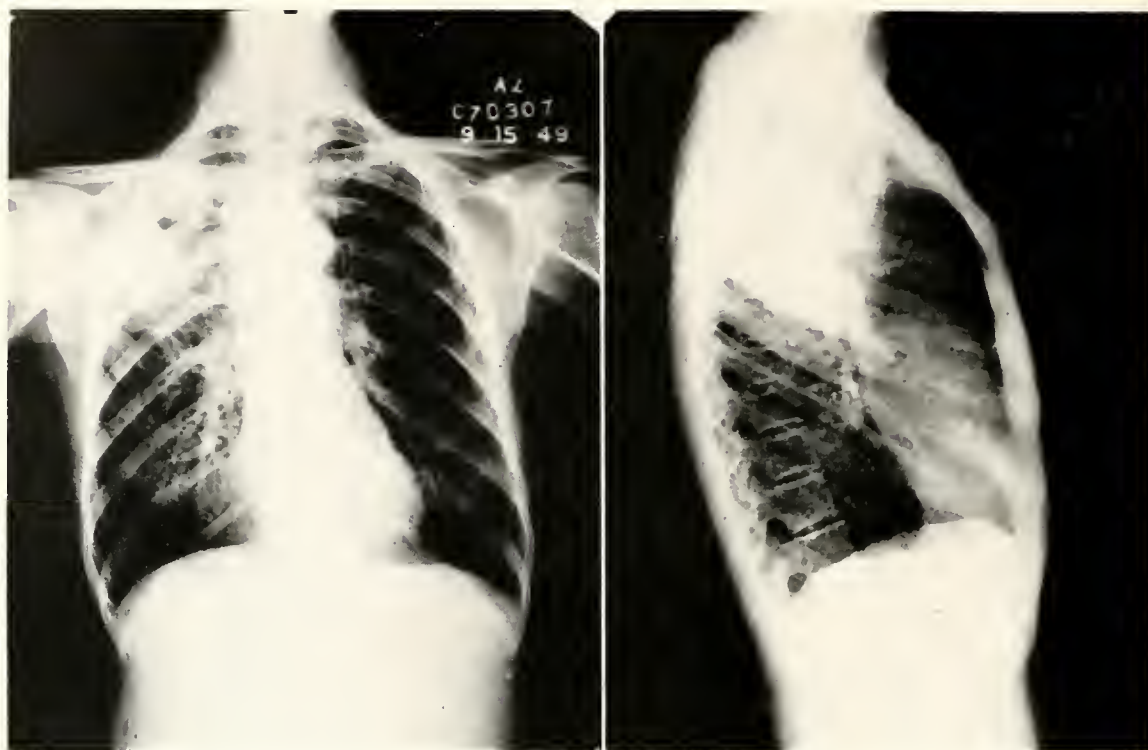


Fig. 4. PA and right lateral projection of the chest showing involvement of the posterior segment of the right upper lobe.

produce a collapse of the anterior and posterior subsegments simultaneously; therefore, when on proper study with lateral films it can be shown that the anterior and posterior axillary subsegments are abnormal, we are able to rule out single branch bronchus obstruction and thereby judge the process as peripheral and most likely inflammatory. Adherence to this important principle has proved of great value to us in a number of diagnostic problems (fig. 3). Incidentally, the subsegments under discussion also receive a dual blood supply; hence occlusion of any vessel will fail to cause infarction. This again is a valuable point in differential diagnosis.

Segmental changes

The different bronchopulmonary segments under discussion may be involved in several ways: They may consolidate without any change in size or shape; they may collapse, and show marked changes in size, shape and density; or, very significantly, they may become emphysematous and change their size, shape, and density. When consolidated, the segments are dense and, if pro-

perly viewed, will be wedge-shaped. The shape, however, will vary, depending on the position in which the lung is x-rayed. Atelectasis renders the segment smaller than normal, and usually the limiting borders will be concave rather than straight. Also, the segment will obviously be denser than the surrounding lung. The changes will depend, of course, upon how much air has been absorbed. This feature has been stressed by Robbins⁽⁷⁾.

The third change has received much too scant attention. This concerns emphysema of segments or subsegments of lung. Unfortunately, this change is more difficult to evaluate; yet frequently it may be the only sign of early bronchogenic tumor. The manner in which this abnormality is produced is of interest, for it concerns not merely anatomic change, but, more significantly, physiologic principles. A bronchus in which a small growth is present will, for a time, fail to interfere significantly with ingress of air; but it may and does seriously impede egress of air. During the inhalation phase the recorded film may show no abnormality.

A film made immediately after rapid ex-

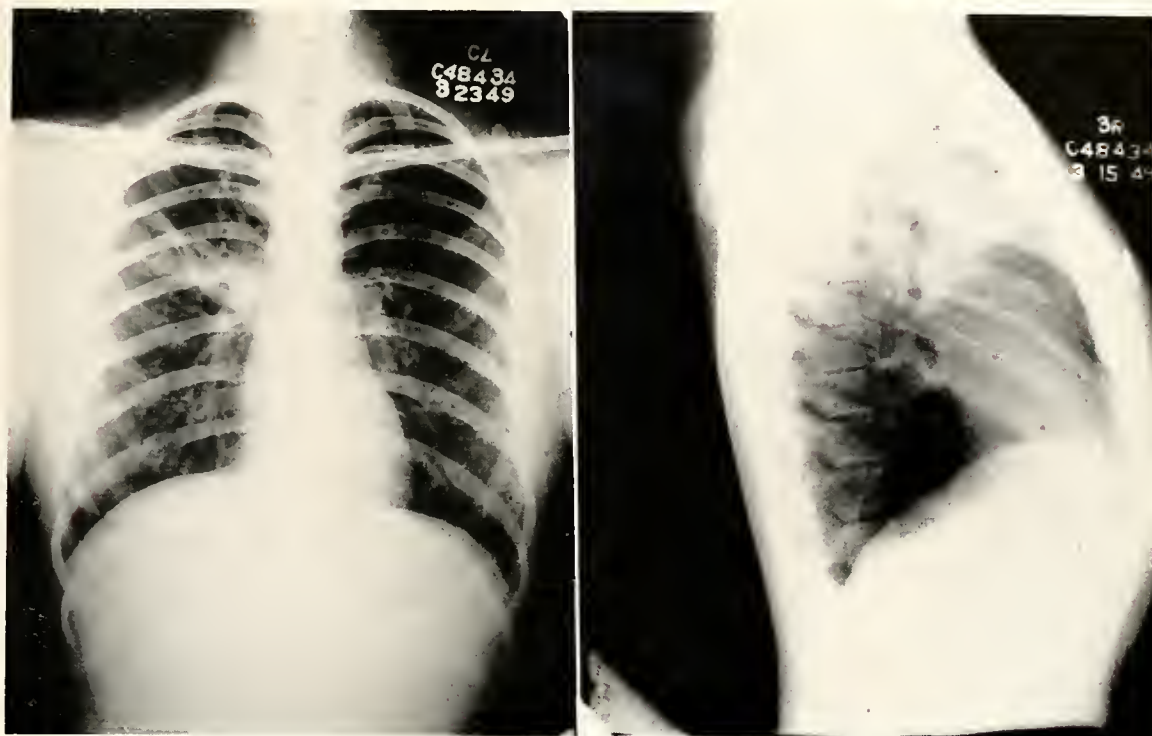


Fig. 5. PA and right lateral chest film showing involvement of the anterior segment of the right upper lobe.

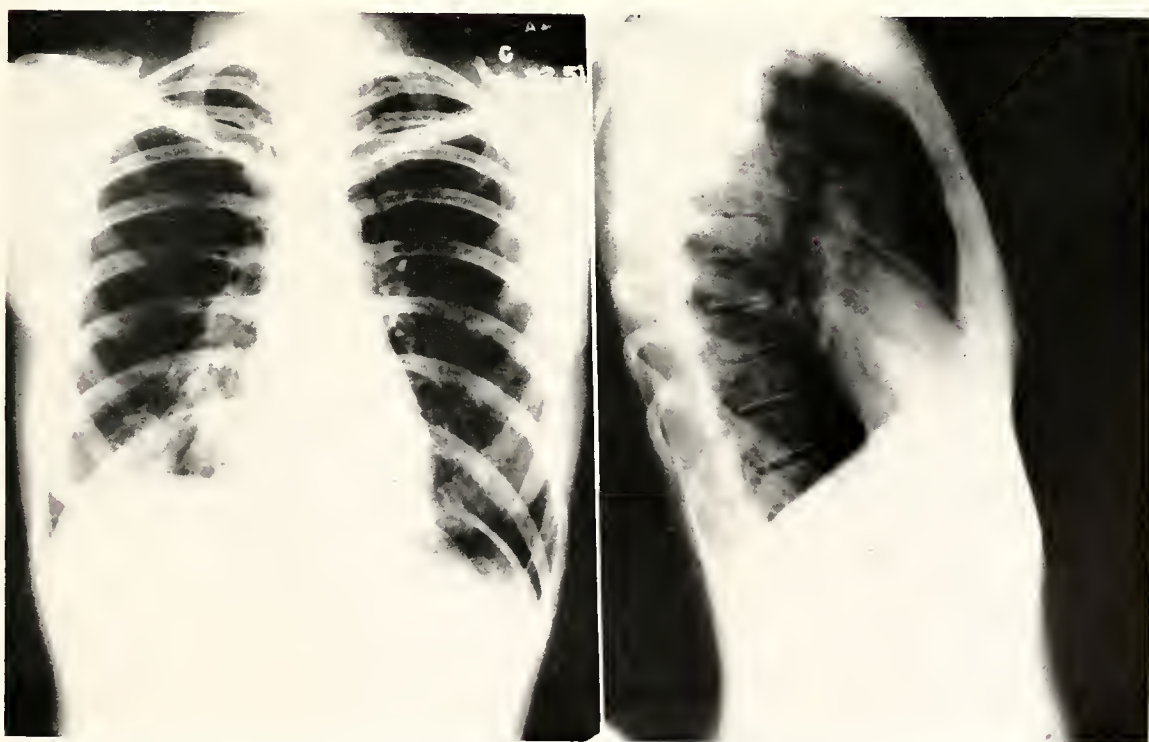


Fig. 6. PA and right lateral projection of the chest showing involvement of the inferior subdivision of the lateral segment of the right middle lobe.

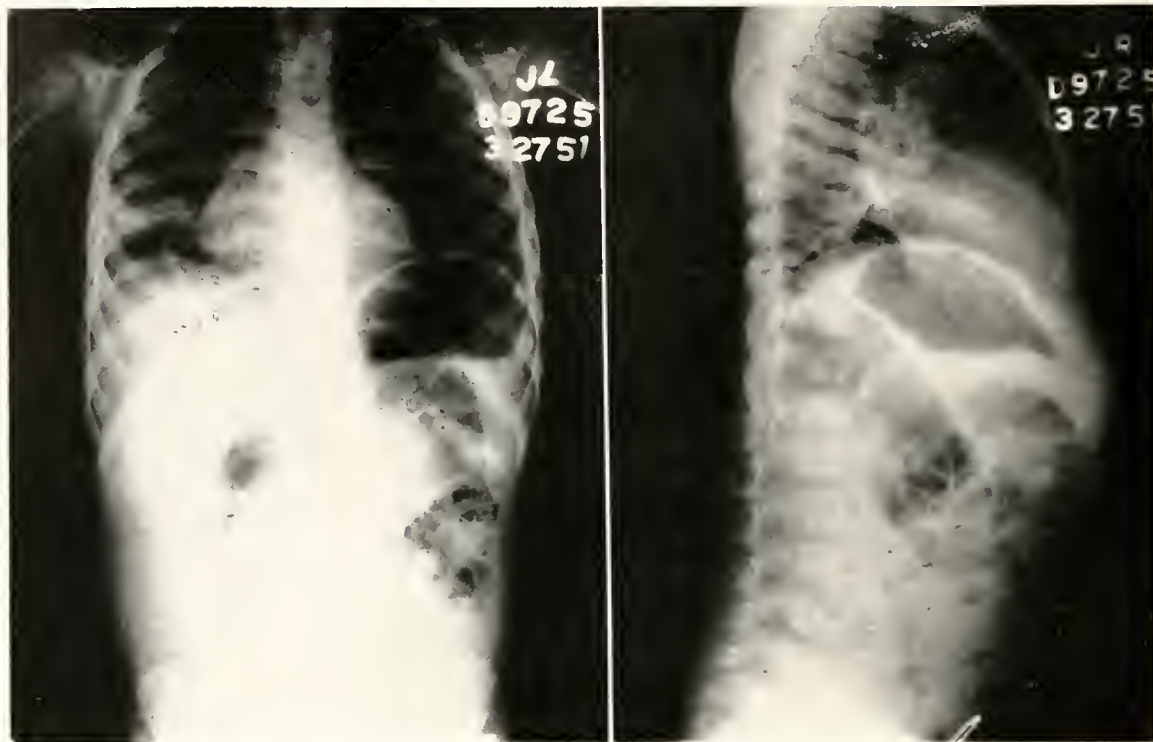


Fig. 7. PA and right lateral projection of the chest showing involvement of the lateral segment of the right middle lobe.

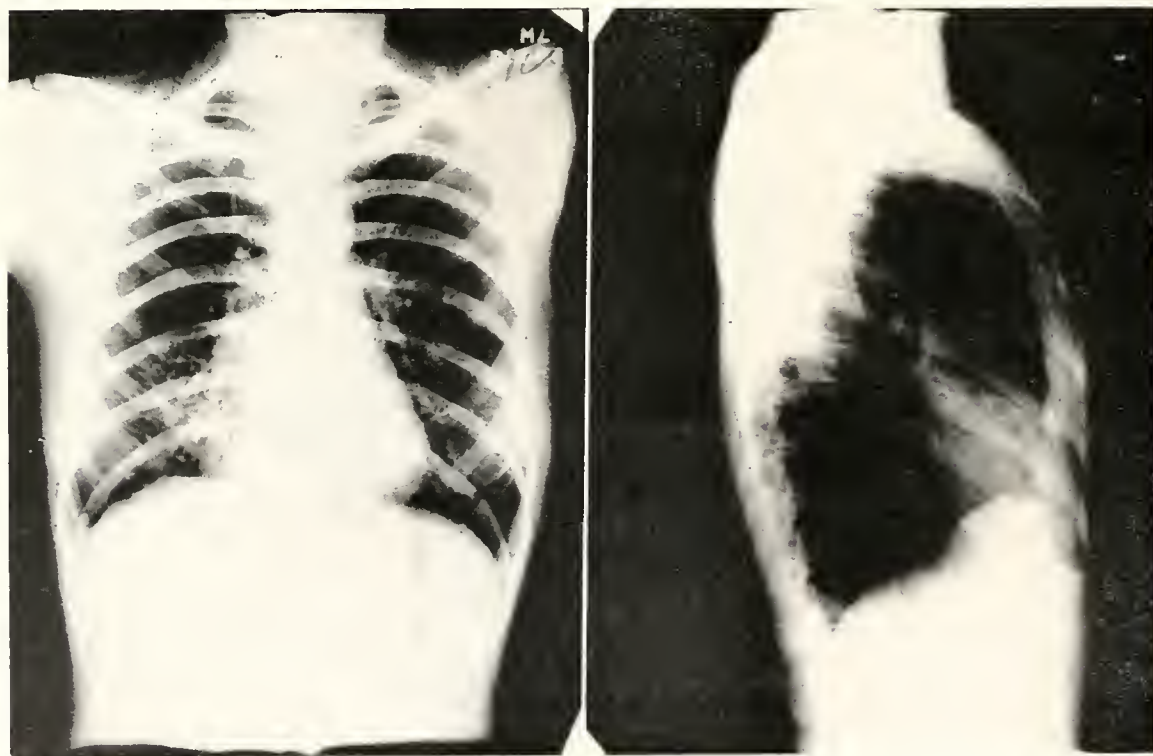


Fig. 8. PA and right lateral projection of the chest showing involvement of the medial segment of the right middle lobe.

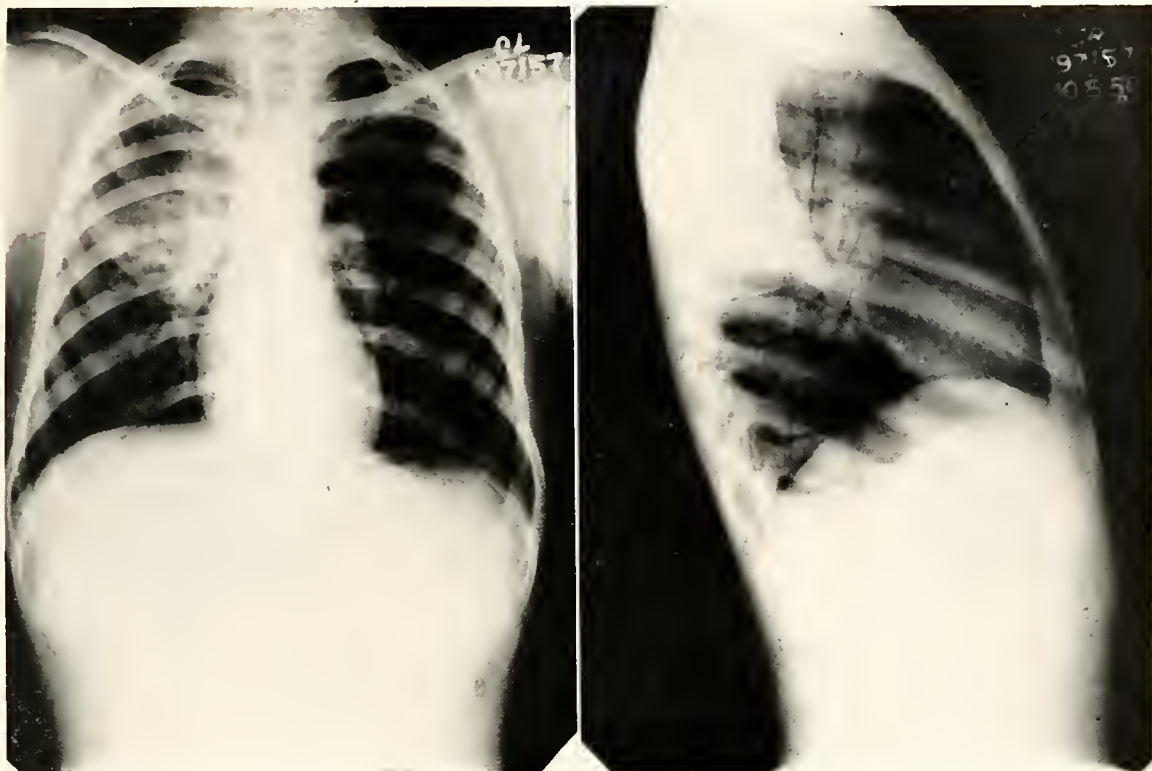


Fig. 9. PA and right lateral projection of the chest showing involvement of the dorsal segment of the right lower lobe.

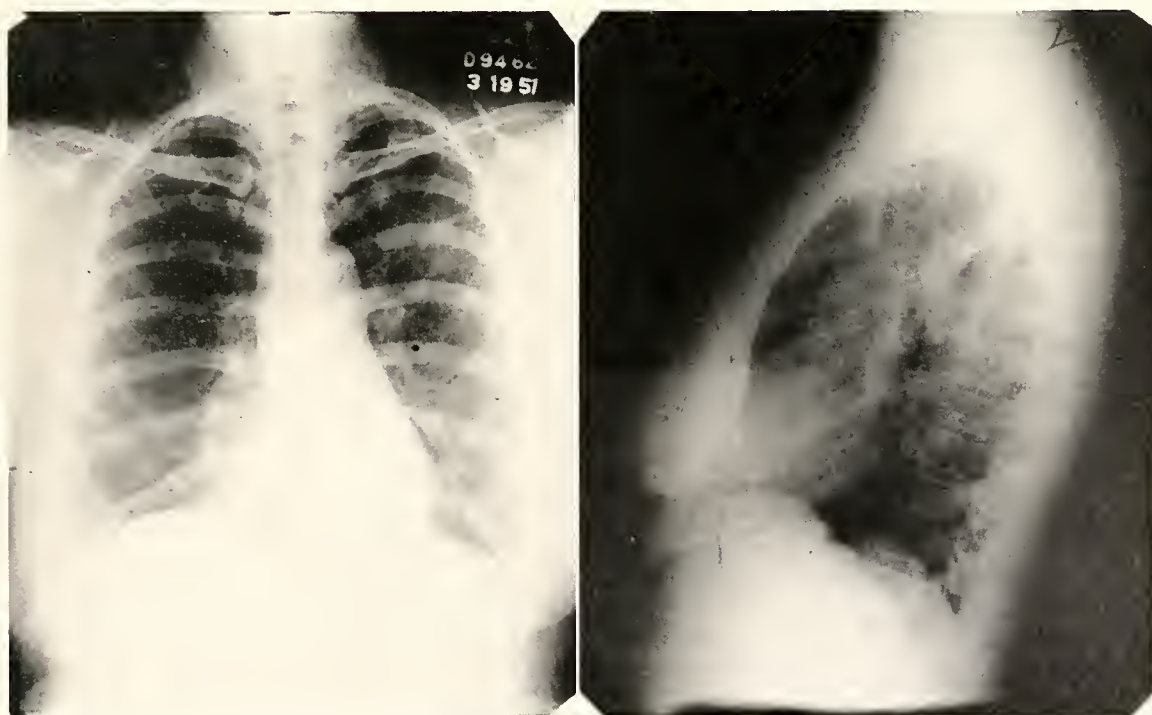


Fig. 10. PA and left lateral chest film revealing involvement of the posterior segment of the left upper lobe.

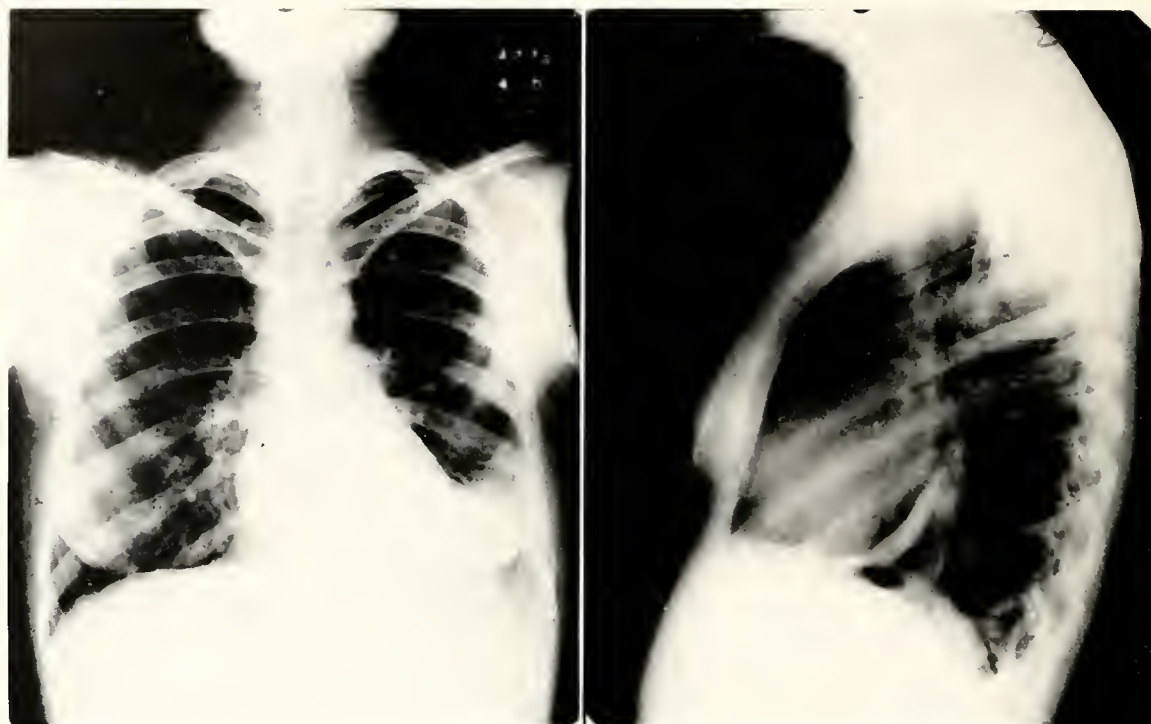


Fig. 11. PA and left lateral projection of the chest showing involvement of the antero-medial basal segment of the left lower lobe.

halation will show a striking zone of increased translucency due to the trapping of air. This type of study is unfortunately not done often enough; indeed, all of us know well that films in full inspiration are the accepted routine.

It is perhaps fair to question the sagacity of such a routine, especially in problem cases that have not been solved after the usual roentgen study. Any elusive pulmonary problem that remains undiagnosed, particularly in the face of normal films, merits roentgen inhalation and exhalation studies. The demonstration of a segment of lung which is larger and blacker will often unlock the door to an otherwise insoluble problem.

Illustrative Cases

The various diseases of the lungs have not been elaborately or fully detailed, but certain anatomic and physiologic features have been emphasized. Many other aspects of both the anatomy and physiology are now under study. For purposes of demonstration, a number of cases have been selected to show how some of the bronchopulmonary segments look in the roentgenographic study when in-

volved by different diseases (figs. 4-11).

The illustrations do not include examples of every type of change discussed, nor do they demonstrate each bronchopulmonary segment. We have not as yet collected satisfactory examples of the various changes in each lung segment, but have been successful in finding a surprisingly large series of appropriate cases. The ones illustrated are significantly representative, and have all been verified as to diagnosis.

Charts 1 and 2 are diagrammatic representations of the bronchopulmonary segments when consolidated and normal in size. Since it is difficult to visualize this anatomy, such a diagram which supposes that only one segment is consolidated may lead to a better understanding of the location of these different lung areas as seen on the posterior-anterior and lateral projections.

Appreciation of the type of segmental change—whether change in size, emphysema, or early clouding—comes only with experience. It is a rewarding and richly satisfying achievement to diagnose accurately an otherwise obscure lesion, especially when it is still in a curable state.

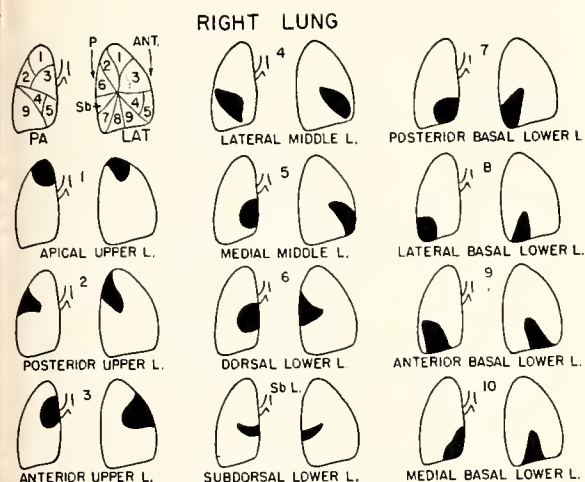


Chart 1. Diagrammatic representation of the bronchopulmonary segments of the right lung when consolidated, but normal in size.

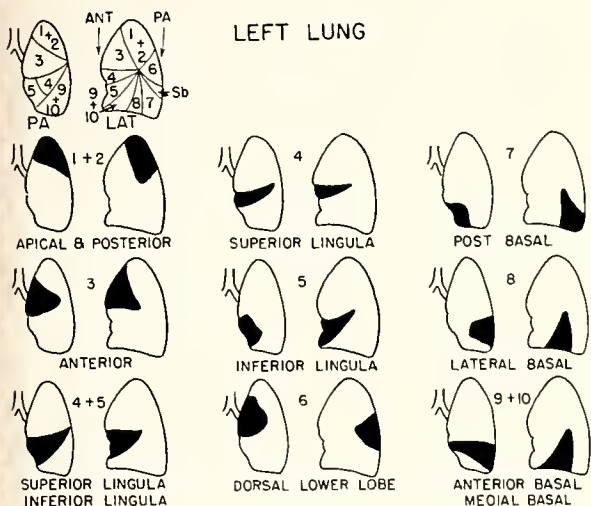


Chart 2. Diagrammatic representation of the bronchopulmonary segments of the left lung when consolidated, but normal in size.

Summary

1. The bronchopulmonary segments are described and illustrated.
2. The diagnostic importance of localization of disease is discussed.
3. Physiologic studies of the disease in lungs are stressed.

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BRONCHOGENIC CARCINOMA AS A MEDICAL PROBLEM

A. DERWIN COOPER, M.D.*

DURHAM

The past decade has seen remarkable progress in widening the field of thoracic surgery. The facility with which a lung or a portion of a lung may now be resected is an advance which offers hope for the control of numerous pulmonary lesions previously considered beyond help. At present it affords the best possibility of cure in patients with bronchogenic carcinoma. The surgeon can do little, however, in this or any other type of carcinoma when the patient is presented to him in an advanced stage of the disease. Undoubtedly, it is discouraging to the surgeon in such cases to find repeatedly that patients had symptoms for three to six months before they consulted a physician, but it must be even more discouraging to discover that another three to five months have passed while attempts were made to establish a diagnosis. Increased alertness to the possibility of bronchogenic carcinoma is therefore greatly to be desired, on the part of both the public and the medical profession. The roentgenologist is frequently the first to suspect the presence of this lesion, and can often be instrumental in bringing the thoracic surgeon into the picture early, thereby saving the patient invaluable time.

Symptoms

The delay between the appearance of symptoms and the seeking of medical advice may eventually be diminished somewhat through educational efforts directed toward the public. However, every physician should be sufficiently cancer conscious to realize that

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certain symptoms and roentgenographic findings in any patient over 40 years of age call for immediate and urgent diagnostic procedures, even including exploratory thoracotomy, which is far preferable to a period of watchful waiting.

In the earliest stages, there usually are no symptoms at all, but, as bronchial obstruction occurs, a persistent cough appears more constantly than any other symptom. At first it is unproductive; then sputum appears, becoming mucoid then purulent. If the patient has had a cough for a number of years, there may be a change in its character, with a tendency for it to become paroxysmal. A localized wheeze may accompany the cough, especially during the early stages, which, when present, suggests bronchial obstruction. Hemoptysis is especially important, for it usually alarms the patient sufficiently to cause him to seek medical attention. Hemoptysis may occur to any degree but most often it takes the form of streaking, in small amounts, over a period of several days. Dyspnea, pain, weight loss, and weakness are usually associated with the later stages.

One or more of these symptoms in a person over 40 years of age should suggest immediately the possibility of a bronchogenic carcinoma. If the presence of these symptoms is made known to the radiologist, he will make every effort to rule out this possibility, perhaps by suggesting, in addition to the routine postero-anterior film, any or all of the following: a lateral film, comparative films made at the end of deep inspiration and forced expiration to demonstrate the presence of localized emphysema, planigrams or Bucky films, and bronchograms. Should a lesion be discovered, biopsy by bronchoscopy, or even by surgical exploration, is indicated as soon as possible, unless a satisfactory diagnosis of the lesion has been made by other procedures. If these investigations are considered and carried out in a matter of days instead of weeks or months, the thoracic surgeon will have a far better chance of removing the carcinoma in its entirety.

Suggestive Diagnoses

Certain diagnoses should also suggest the possibility of bronchogenic carcinoma, especially in persons over 40. As the radiologist well knows, avoidable delays in diagnosing pulmonary malignancies are sometimes caused by protracted treatment of the pa-

tient for virus pneumonia, unresolved pneumonia, bronchitis, or asthma before a roentgenogram has been made. Carcinoma may resemble these conditions so closely clinically and roentgenographically that whenever a pulmonary lesion is explained by such a diagnosis, steps should be taken to rule out malignancy unless there is prompt and complete clearing of the lesion on the x-ray film. Similarly, lesions thought to be active tuberculosis but which do not readily show tubercle bacilli deserve further investigation, especially in older people. Pulmonary abscess, also appearing in this age group, may overshadow an underlying carcinoma.

Careful evaluation of the results of antibiotic therapy in pulmonary disease is necessary, since a malignant condition may show temporary improvement with their administration, owing to a decrease in the amount of adjacent secondary infection. Incomplete clearing or early recurrence of the lesion strongly suggests cancer.

Occasionally the physician is confronted with a peripherally located, solitary, well circumscribed nodule, producing no symptoms and discovered only on routine x-ray examination. The customary diagnostic procedures in this instance usually produce little or no information, and the tendency is to watch such a lesion—perhaps for several months. Since many of these solitary tumors are malignant, this period of delay may endanger the patient's only hope for a cure. Such tumors should be explored early, and their removal, even though they may turn out to be benign, is an advisable procedure.

Mass Surveys

Mass x-ray surveys, though directed primarily toward finding tuberculosis, are revealing many nontuberculous lesions of importance, some of them malignant in the asymptomatic stage. In these surveys, in the routine x-ray examinations of all hospital and clinic admissions, and in the selective referrals for x-ray of patients over 40 with suggestive symptoms, lie the best chances of discovering the bronchogenic carcinoma early enough to offer hope of cure through surgical removal. It is imperative, however, that once a shadow suggestive of malignancy is found, no time be lost in carrying out the proper diagnostic procedures. The patient, the attending physician, the radiologist, and the thoracic surgeon must each be impressed with the urgency of the situation and take

the necessary steps to arrive at a diagnosis without costly delay for the patient. As in tuberculosis where, too, the symptoms which usually cause the patient to seek medical advice are associated with the late stages of the disease, periodic routine x-ray studies of the age groups showing the highest incidence of the disease will uncover a larger percentage of individuals in the early stages when treatment may be curative rather than palliative.

During a period of approximately one year 8 proven cases of bronchogenic carcinoma were found through the survey unit in Durham County, 7 of which came to operation. The average length of time between the screening film and surgical exploration was a little over two months, with the interval varying from three weeks to six months. In less than two years all of the 8 patients are dead of carcinoma except one, who now shows evidence of cerebral metastasis. The 3 who came to operation in three weeks time were thought to have had complete removal of the tumor in each case, but unfortunately 2 died postoperatively, and the third suffered a cerebral vascular accident seven months after the operation, having shown no recurrence of the carcinoma up to that time.

With the increase in x-ray surveys, the opportunity for early diagnosis of bronchogenic carcinoma will present itself more often, and the follow-up of such patients, as well as those with warning symptoms, must be accomplished quickly, since that golden opportunity for cure remains only a few weeks and then is gone forever.

Summary

Early diagnosis of bronchogenic carcinoma is essential if surgical removal is expected to be curative. In suspected cases diagnostic procedures must be accomplished quickly and surgical exploration considered early if other measures fail to establish the diagnosis. Suspected lesions found by x-ray surveys offer the best chance of early diagnosis, but the patient and physician must be impressed with the necessity of rapid and complete follow-up with prompt surgical removal of any potentially dangerous lesion.

The corollary of mass chest survey is subsequent careful, individualized, continued investigation either by, or through referral by, the family doctor.—Ben R. Van Zwalenburg, M.D., J. Michigan State M. Society, November, 1949.

A NEW SIGNIFICANCE OF PULMONARY NECROSIS

FREDERICK R. GILMORE, M.D.

DURHAM

In the past decade, the use of antibiotics and chemotherapeutic agents has made it necessary to re-evaluate the role of pulmonary necrosis. Prior to this period, the literature revealed an overwhelming preponderance of inflammatory abscesses, exclusive of tuberculosis, in comparison to the infrequently reported cases of cavity formation in pulmonary neoplasm. Apparently, a reversal of the statistical incidence of necrosis in benign and malignant lung disease is developing. It now becomes particularly important to consider that in the age group over 40 years, any solitary pulmonary abscess is as likely to be a necrotic cancer as a benign inflammatory suppuration. During the last half century, the actual incidence of lung cancer has increased with over 8,000 deaths in the United States being reported yearly⁽¹⁾.

The evaluation of necrosis becomes more important when one realizes that about 10 to 12 per cent of the lesions can be demonstrated radiographically, while Rubin⁽²⁾ reports that up to one third, and others⁽³⁾ one half of all bronchogenic cancers show necrosis.

Types of Lesions

In general, two main types of suppuration result: (1) the single cavity most frequently found in the peripheral tumor; (2) the multiple abscesses of inflammatory origin lying in the atelectatic segment distal to the obstructing bronchial neoplasm. The latter centrally placed lesion is more easily differentiated from a benign inflammatory cavity due to the visualization of the tumor by tomography, bronchography, or bronchoscopy.

Koletsky⁽³⁾ suggests that squamous cell carcinomas are more frequently distal to the bifurcation of the main stem bronchi—that is, peripheral in the parenchyma—while the adenocarcinomas and oat cell types usually arise in the central tracheo-bronchial tree. This reflects our findings, which show a high incidence of peripheral squamous cell carcinomas, with both radiographic and

From the Department of Radiology, Watts Hospital, Durham, North Carolina.

Table 1

Solitary Neoplastic Necrosis Demonstrated in 160 Lung Tumors at Jefferson Hospital (1946-1950)

Type of Necrosis	No. Patients Under 40	No. Patients Over 40	Total
Bronchogenic Carcinoma	0	11	11
Metastatic Uterine Carcinoma	0	1	1
Hodgkin's Granuloma	1	0	1
			13
Distal to Bronchogenic Carcinoma		5	5
Total			18

Table 2

Age Distribution for Inflammatory and Neoplastic Abscesses at Jefferson Hospital (1946-1950)

Age (years)	Inflammatory	Neoplastic
0-9	2	0
10-19	2	0
20-29	1	1
30-39	2	0
Total Under 40	7	1
40-49	3	3
50-59	6	8
60-69	3	5
70-79	0	1
Total Over 40	12	17
Total	19	18

pathologic evidence of necrosis. At Watts Hospital, of the 10 lung tumors having proven excavation, 5 were of the squamous cell type. Although the bronchoscopist can rarely demonstrate an endobronchial tumor mass in these peripheral lesions because of their location, he can usually obtain a high percentage of positive secretions for tumor cells, since there is a communication between the cavity and the bronchial tree. Herbut⁽¹⁾ reports 87 per cent correct positive cytologic smears of aspirated bronchoscopic material in a large series of consecutive cases. It therefore becomes mandatory in cases of necrosis to have the patient sent to a center where careful bronchoscopy and secretion studies can be done, followed by definitive cancer surgery when indicated.

Comparative Studies

At Jefferson Medical College Hospital, Wigh and the author analyzed and reported⁽⁵⁾ the chest roentgenograms of all ward and clinic patients from 1946 to 1950, with reference to a single area of pulmonary necrosis. Tuberculosis was excluded because of the relative ease of differentiating this disease, radiographically, clinically, and pathologically from simple abscesses of inflammatory or malignant origin. In this series were 18 cases of proven pulmonary cancer associated with a single necrotic cavity, from an over-all total of 160 lung tumors (table 1). Only 19 cases of detectable single inflammatory suppuration were discovered during this same period.

Analysis of the age distribution (table 2) indicates that in patients over 40 years of age only 12 benign abscesses were found, as compared to 17 associated with tumor. From the summary: "solitary neoplastic necrosis is 1.5 times more common than benign non-

Table 3
Inflammatory Abscesses Seen at Watts and Jefferson Hospitals

Abscess	Patients Under 40		Patients Over 40		Total	
	W	J	W	J	W	J
Usual Etiology	3	5	7	10	10	15
Infarction	0	1	1	1	1	2
Bronchiectasis	1	1	1	1	2	2
Total	4	7	9	12	13	19
<i>Abscess-Like Lesions</i>						
Infected Cyst	1	5	1	2	2	7
Tuberculosis ?	0	0	1	4	1	4
Pneumatocele	0	1	0	0	0	1
Total	1	6	2	6	3	12

tuberculous abscesses. Therefore, whenever the differential diagnosis arises, greater weight should be given to bronchogenic carcinoma, at least after the fourth decade."⁽⁵⁾

At Watts Hospital, an analysis was made of all cases showing single pulmonary necrosis, small cysts, and lung cancer from March, 1941, through 1951. Comparison of the two series (table 3) shows considerable similarity in the age distribution and etiology between the 13 cases of benign lung abscesses at Watts and the 19 at Jefferson. In this decade a total of 36 lung cancers were diagnosed and treated, 29 since 1948. Two cases showed single cavities in peripheral tumors in patients over 60 years old, and 10 showed pathologic evidence of necrosis. Although this small series at Watts is not statistically significant, it reflects the same trend and conforms to the much larger Jefferson case findings. The etiology of the benign abscesses parallels closely that described in the literature, except for parasitic and fungus diseases which have caused single cavities⁽⁶⁾.

Several problem cases of solitary upper lobe necrosis requiring exhaustive radio-

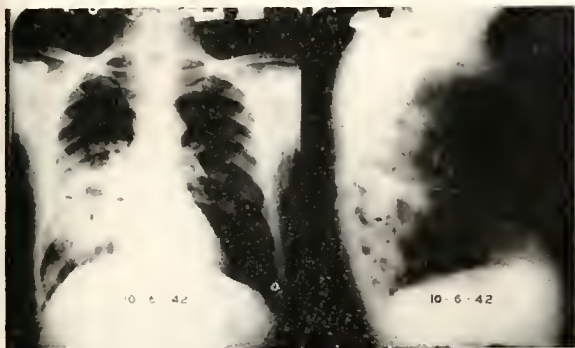


Fig. 1. Benign lung abscess simulating tumor necrosis in a 62 year old male, who, five years later, developed anaplastic bronchogenic carcinoma in the opposite lung.

graphic, bronchoscopic, and clinical study were encountered. In one case the abscess was proved to be an infected lung only by lobectomy. Another abscess healed completely under proper antibiotic and chemotherapy after tuberculosis had been excluded as the cause.

A third interesting patient, a man in his seventh decade, showed a peculiar sequence of abscess and neoplasm. In 1942 he had an abscess in the right lower lobe, which responded to sulfathiazole. The roentgenograms (fig. 1) demonstrated some similarity to tumor necrosis, with the thick irregular wall and central cavity; however, the indistinct inflammatory margin was more typical of a benign abscess. This abscess completely disappeared from the right lung with therapy. In December, 1947, the patient returned with advanced cancer of the left lung with metastases. Bronchoscopic biopsy proved this to be anaplastic in type.

Roentgenologic Criteria

Much has been written^(2,4,8) concerning the difficulty in differentiating benign and malignant pulmonary abscesses since Carmen⁽⁹⁾, in 1921, first described the roentgenologic features of malignant necrosis. In our report⁽⁵⁾ certain roentgenographic criteria seemed to aid in the differentiation:

1. A well circumscribed mass

The most striking feature, when present, is a well delineated tumor mass without inflammatory changes, lying in the peripheral lung field and showing varying degrees of necrosis. It is distinctly different from the benign lung abscess which shows the irregular inflammatory margin.

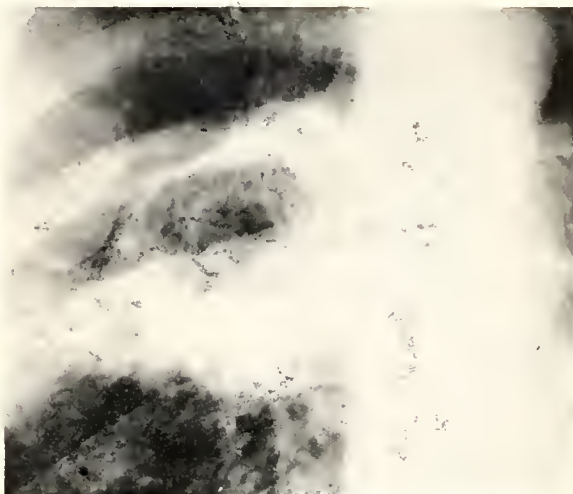


Fig. 2. Excavating neoplasm with very thin wall. (Wigh and Gilmore⁽⁵⁾, courtesy of Radiology).

2. A centrally located cavity

Excavation in pulmonary neoplasm may vary greatly in size, from cavities that are not visible on the roentgenogram, owing to non-communication of the necrosis with the draining bronchus, to one in which the entire tumor is almost completely enucleated (fig. 2). In benign abscesses, the cavity is more frequently eccentric in position, in contrast to the usual central position noted in malignancy. Fluid levels are of no differential importance.

3. A thick, easily defined wall

Again, variation in wall thickness depends upon the degree of excavation. In contrast, the benign putrid abscess has an indefinable wall.

4. An irregular, nodular inner wall

Some authors^(7,8) have described this as "bumpy" or "scalloping" of the inner wall, due to residual tumor tissue which has irregularly and incompletely sloughed out (fig. 3). This feature is not significant in benign lesions.

5. Extension of the tumor

The necrotic tumor may enlarge to cross the fissures or pleura and involve adjacent tissue by direct extension, especially in the terminal phase of the disease. (fig. 4) Rarely is this visualized in septic abscesses, since these are usually confined to the involved lobe.

6. Infrequency of atelectasis

Collapse of pulmonary segments or a lobe is unusual with peripheral tumors, because of their position. Of course atelectasis, as mentioned before, is frequent with centrally



Fig. 3. Photograph of lung specimen, showing irregular, thick tumor wall in partially necrotic bronchogenic carcinoma. (Wigh and Gilmore⁽⁵⁾, courtesy of Radiology.)

placed endobronchial neoplasms, which cause obstruction and may result in multiple inflammatory abscesses distally in the collapsed segments. To a less extent, this has been noted with benign suppuration.

7. Absence of inflammation

The absence of pleural and parenchymal inflammatory disease is a noteworthy finding pointing to malignancy; the opposite is true, of course, with infected cysts and abscesses.

8. Metastases

When associated secondary soft tissue or bone lesions are found in the presence of a necrotic lesion, biopsy will confirm the diagnosis.

Comment

In these problems, the radiologist must assume a major role in the front line of defense against the obsolete "watchful waiting" policy in pulmonary necrotic lesions. To establish in three weeks a positive diagnosis of malignant or benign abscess will require all the special radiographic procedures of bucky films, tomography, and bronchography. Simultaneously, he can urge more specific studies including bronchoscopy, with

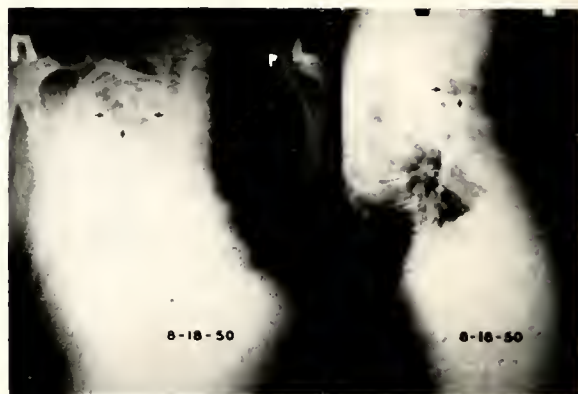


Fig. 4. Single abscess within necrotic lung carcinoma one week before death.

bronchial washings and sputum examination by the Papanicolaou method. Exploratory thoracotomy is now being used much more frequently for diagnosis as well as therapy in unknown pulmonary disease, with no higher morbidity and mortality than the average exploratory laparotomy⁽¹⁰⁾.

Conclusion

1. Single necrosis in pulmonary neoplasm varies from 10 to 12 per cent radiographically, and up to 50 per cent at necropsy.

2. Recent use of antibiotic and chemotherapeutic agents has reduced the incidence of benign non-tuberculous abscesses in patients over 40 years of age to that of malignant necrosis.

3. Any single pulmonary abscess in patients over the fifth decade should be regarded as cancerous until proved otherwise.

4. Roentgenographic criteria aid in the differential diagnosis of benign and malignant necrosis.

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THE SURGICAL MANAGEMENT OF CARCINOMA OF THE LUNG

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and

E. R. TAYLOR, M.D.

DURHAM

In recent months a total of approximately 1000 cases of carcinoma of the lung treated surgically have been reported by Churchill⁽¹⁾, Hudson⁽²⁾, Ochsner⁽³⁾, Allison⁽⁴⁾, and others. It is generally agreed that carcinoma of the lung has become a frequent disease.

In the present series, our experience with reference to operability, resectability, and mortality are essentially the same as those in the general reports. Our average survival rates, however, have been shorter, with some exceptions.

We have suspected carcinoma of the lung 70 times during the last seven years. There were 38 proven cases. Only 22 (58 per cent) were considered reasonable cases for exploration. Of these, 15 (68 per cent), or only 42 per cent of the proven cases, were resectable. In 80 per cent of the cases in which resection was done, the carcinoma had extended beyond the confines of the lung. Of the 22 patients who had exploratory operations and the 15 treated by resection, we lost only 1—a mortality rate of 4 per cent (fig. 1). Since only a few of our patients were operated on prior to 1949, long term follow-up reports are not available. One 36 year old woman is living and well seven years after resection.

Males outnumbered females in our series 4 to 1. In some series the ratio has been reported to be as high as 18 to 1, and in others about 5 to 1.

Smoking as an Etiologic Factor

Cigarette smoking, although a prominent factor in our series, as it has been in almost all the series reported, has not been significant in all the cases. Watson⁽⁵⁾, of the Memorial Hospital of New York, has reported 100 patients with carcinoma of the lung. Of his male patients, 37 per cent were heavy smokers, while in a control series of other patients in the hospital, only 19 per cent were heavy smokers. Of the female patients with cancer of the lung, 17 per cent were heavy smokers, while only 3 per cent of the control group were heavy smokers. Scherck⁽⁶⁾

SUSPECTED CASES		70
PROVEN		38
OPERATED		22
15	RESECTED	
1	OPERATIVE DEATH	

Fig. 1. Over-all distribution of cases of carcinoma of the lung.

of Chicago reported 86 veterans with lung cancers, 68 per cent of whom were heavy smokers. Levine⁽⁷⁾, in studying the records of several thousand patients, found a positive correlation between the use of cigarettes and lung cancer. Wynder⁽⁸⁾ Graham⁽⁹⁾, and many others have reported similar observations. Of 650 patients with epidermoid or undifferentiated carcinoma of the lung at the Barnes Hospital in St. Louis, only 10 patients were nonsmokers.

Operative Procedures

In every case our aim has been to remove the carcinoma as completely as possible. To this end we have advocated and performed as radical a pneumonectomy as possible, with removal of hilar and mediastinal lymph nodes. We have not performed extensive resection of the mediastinal nodes from the thoracic inlet to the diaphragm as a few surgeons are now doing. Local resection of the pleura, pericardium, or diaphragm is carried out whenever adhesions which are not of a loose type exist in the general region of the tumor. One patient, in whom we resected two thirds of the anterior pericardium and a wide segment of parietal pleura in addition to the left lung (fig 2), has survived 16 months; and, although the most recent chest films show metastasis to other areas, she is still quite comfortable. Another had much of the parietal pleura removed and did well for 12 months (fig. 3).

Lobectomy has been reserved for patients whose pulmonary and cardiac reserve was not considered sufficient to tolerate pneumonectomy without producing a respiratory cripple. We have used clinical data instead of spirometry as our criteria of pulmonary reserve. Age has not been considered. Emphysema, severe asthma, and marked kyphosis, all producing exertional or even rest dyspnea, are important. Serious hypertension, congestive failure, and coronary disease

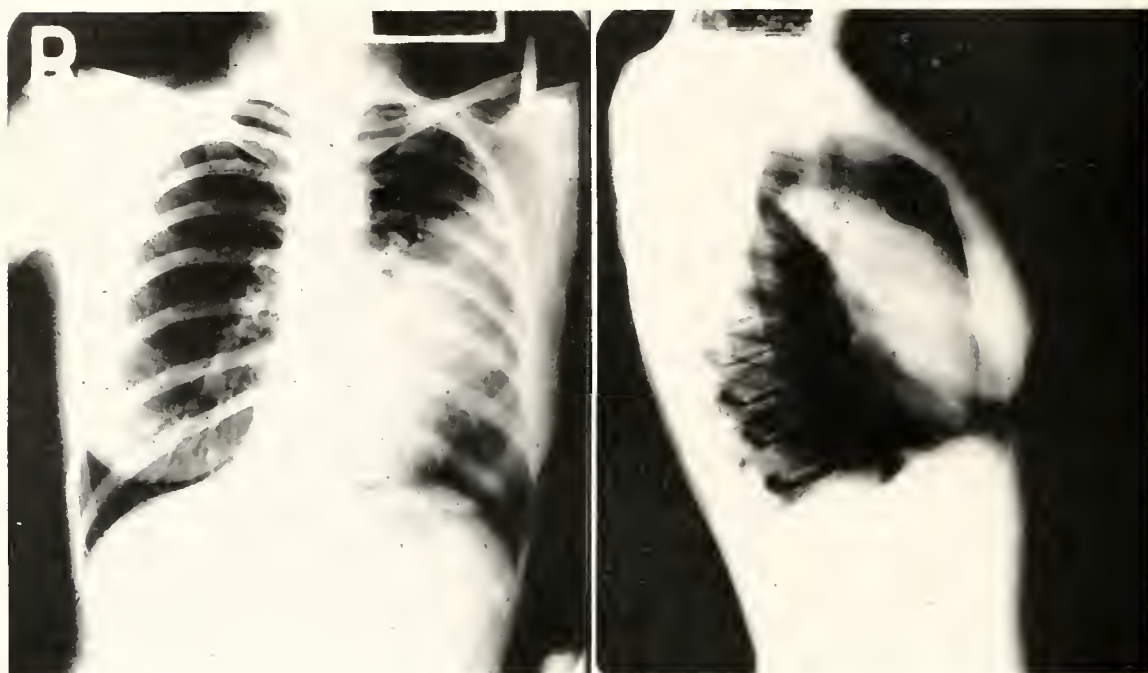


Fig. 2. Carcinoma of the left upper lobe of the lung, with involvement of the pleura and pericardium. The patient was well 16 months after resection before the appearance of metastasis to the brain.

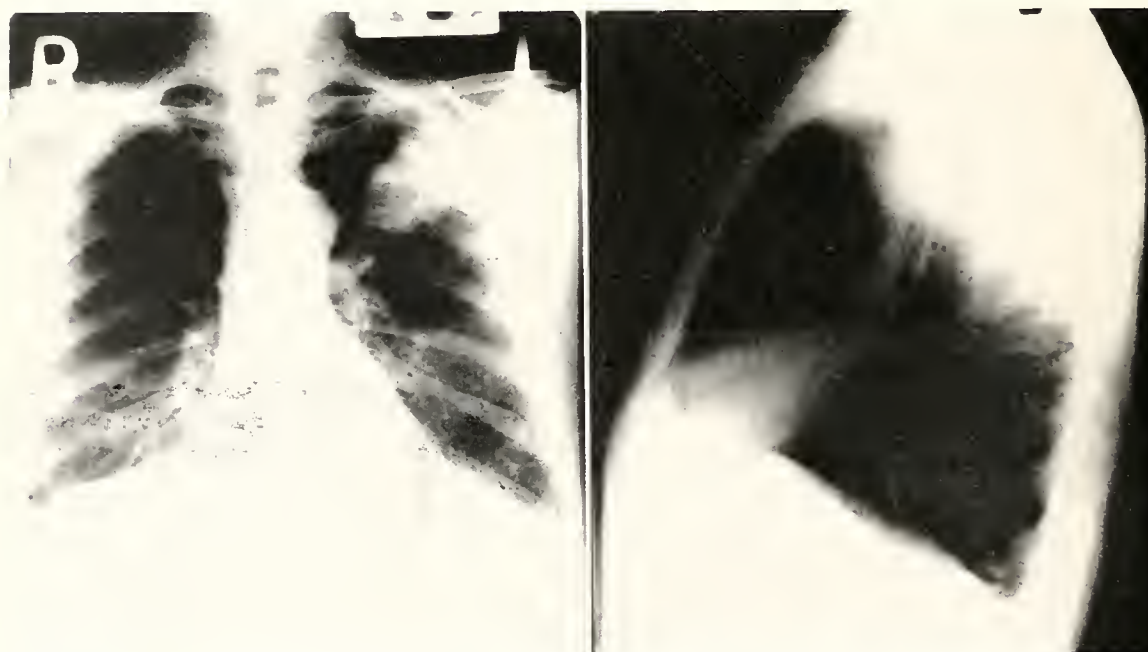


Fig. 3. Carcinoma of the left upper lobe, with extensive involvement of the pleura. The patient was well 12 months after resection.

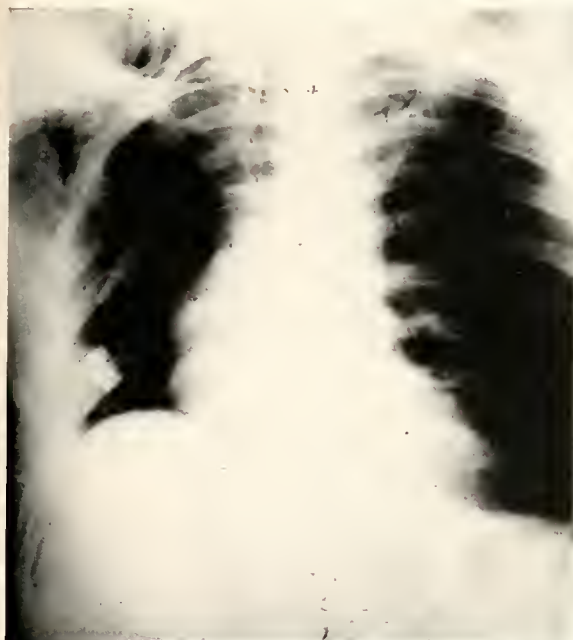


Fig. 4. Collapse of the remaining upper lobe. There was no dyspnea. At operation shock developed on every attempt to close the upper right bronchus.

are considered less important, but influence our decision.

It must be remembered that our pulmonary reserve is usually ample. Tidal air is cut in half when a pneumonectomy is performed. This will normally increase the efficiency of each respiratory excursion to about 75 cc. When the total amount of air normally exchanged with each respiratory phase is only 500 cc.—and this includes all the tidal air—it is apparent that one really needs very little of the whole.

We have not refused to operate on patients who were poor surgical risks.

We recently had a patient who had a carcinoma of the right lower lobe at the hilum, with pneumonitis and small abscesses distal to the lesion. He had marked ankle edema. He had been a known asthmatic for many years, and had generalized atherosclerosis, with a history of thrombosis of the inferior cerebellar artery, hypertension, paroxysmal auricular fibrillation, and cirrhosis of the liver. At operation, when we occluded the right main bronchus, his blood pressure immediately fell to shock levels. The drop was repeated on three occasions, and we had increasing difficulty in restoring it each time. We finally agreed with the anesthetist that

the patient would not tolerate a pneumonectomy, and performed a right lower and middle lobectomy. On the second day he had a sudden rise in temperature, which was found to be associated with a complete atelectasis of the remaining upper lobe (fig. 4). This lobe was collapsed at least six to eight hours before tracheal aspiration removed a quantity of mucus and allowed re-expansion. At no time, however, did the patient appear dyspneic or in distress. His ankle edema disappeared rapidly after operation. He has done so well, in fact, that we considered re-opening his chest for removal of the upper lobe and more extensive mediastinal lymph node dissection. One might assume from this case that respiratory efficiency is diminished under anesthesia.

Lobectomy has been performed on only 3 of our patients, in each case because some difficulty made pneumonectomy unwise. One is the case mentioned above. Another patient, a 67 year old man, was obese, emphysematous, hypertensive, and had a pronounced kyphosis, with exertional dyspnea. The carcinoma was in the right lower lobe, with complete consolidation of the lobe. The patient was well for one year after the operation. Lesions then developed in the opposite lung field, and he died six months later. The third case was really not resectable, but one of us had proceeded so far in trying to determine the operability that the right lower lobe had to be removed because of hemorrhage. Much carcinoma was left, and the patient died six months later.

The Value of Roentgen Studies in Dealing With Postoperative Complications

At the end of the operative procedure there are many problems in cardiorespiratory dynamics. An immediate postoperative roentgenogram of the chest is of great aid in their solution. When performing lobectomies, the surgeon may watch the expansion of the remaining lobes to the very last minute of pleural closure, finding it complete, only to see later that a partial or very marked collapse of the lung has taken place. Atelectasis is difficult to determine by auscultation and percussion through heavy dressings.

The surgeon needs the aid of the roentgenologist in differentiating atelectasis for two reasons. First, he wants to know if the remaining lung tissue is normally expanded.



Fig. 5. Roentgenogram taken immediately after the operation, showing a shift of the mediastinum toward the well side.

If not, the degree of collapse should be reported. Second, he is vitally interested in consolidation within the lung. A lobe may look normally expanded, but contain multiple areas of consolidation. A lobe which is not fully expanded is not necessarily alarming, but incomplete expansion with consolidation superimposed constitutes a serious complication. Emergency measures must be taken to clear the bronchi and to remove any blockage. Obstructed bronchi lead to consolidation and infection. At times the failure of a lobe to expand fully is due not to obstruction and consolidation, but to failure of our apparatus to maintain a negative pleural pressure.

When a pneumonectomy has been performed, the intrapleural pressure is often measured and regulated by a needle or catheter and pneumothorax apparatus. For some reason, when the patient is moved to the stretcher or bed, this pressure sometimes changes with sharp shift of the mediastinum. Cardiac displacement takes place and adds circulatory embarrassment to the respiratory difficulty. An immediate roentgenogram will reveal this shift (fig. 5).

It is our practice to obtain a portable film early each morning on lobectomy and pneumonectomy patients for the first 3 to 5 days after operation. There may be leakage from

the bronchial stump or from torn lung parenchyma. In some patients, fluid may accumulate more rapidly than air is absorbed from the pleura. This additional fluid may displace the mediastinum acutely. It is important to obtain straight anterior posterior films, with the patient sitting as erect as possible. If there is much rotation, proper evaluation of the mediastinal position is impossible. Other signs such as dyspnea, rises in the respiratory and cardiac rates, and cardiac embarrassment exist, but the roentgenogram gives definite evidence of the patient's condition. With a little experience at reading these films, one can estimate the amount of air to be withdrawn or added.

Figures 6A and B illustrate an unusual problem which did not occur in our series. A pneumonectomy, seemingly uncomplicated except for moderate apical adhesions, had been performed for carcinoma. Following the operation the patient was in shock and had to be transfused, an unusual development after the operative procedure. Temporary rises of blood pressure with gradual falls occurred frequently, and finally the patient died in shock. No particular mention was made of the second chest film (fig. 6B) other than the position of the mediastinum, in the roentgenologic reading. Since this roentgenogram was made the morning after operation, it shows an unusually large amount of fluid for so short a time. One should have suspected that the patient had more than a simple pleural transudate. Despite the transfusion of 3500 cc. of blood after the operation, the patient died on the third day. Autopsy showed 4½ liters of blood in the right side of the chest. The patient died of shock from hemorrhage.

Another complication which may be seen by the roentgenologist is the development of a tension pneumothorax. Usually this is clinically diagnosed and treated so quickly by insertion of a needle or catheter and aspiration that a film is not obtained. This finding, like postoperative atelectasis, when noted by the roentgenologist should cause him to pick up the telephone and immediately notify the ward or the surgeon instead of sending out a routine report. This may be a lifesaving call.

We obtain a routine postoperative check-up film each morning for three to five days and check it personally. Other roentgenograms are taken as needed. Although we

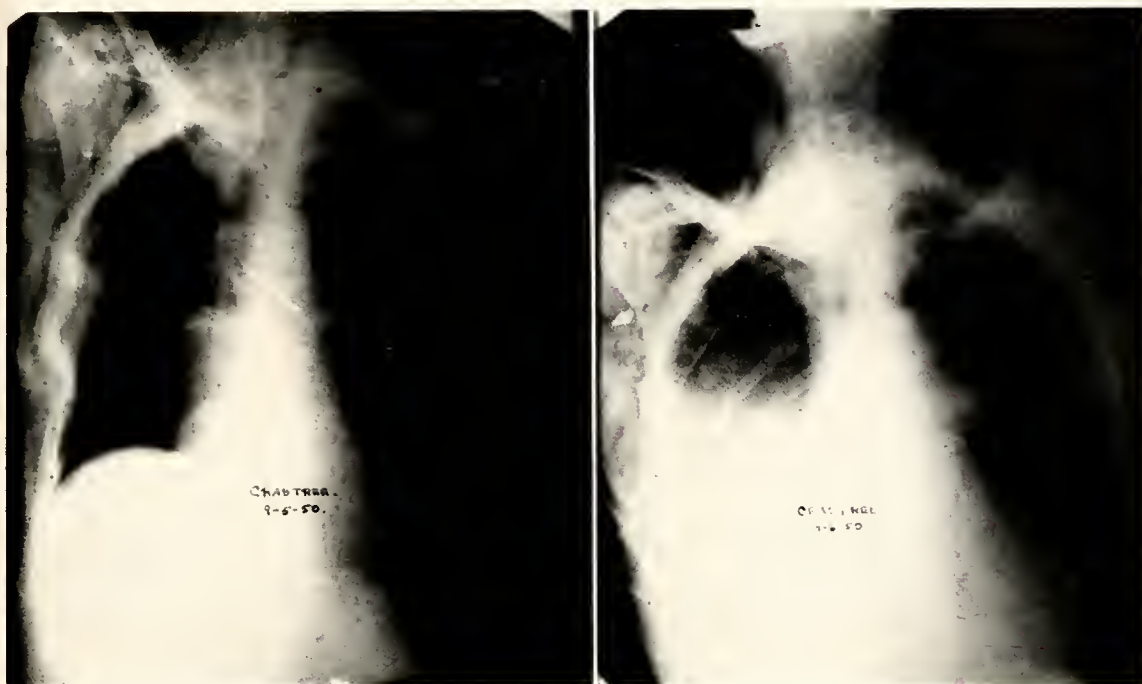


Fig. 6. A (left). Roentgenogram taken immediately after the operation. There is some deviation toward the resected (right) side. B (right). Roentgenogram taken about 16 hours later shows extensive accumulation of fluid, due in this case to hemorrhage.

have had a tension pneumothorax occur twice, once in a post-pneumonectomy for carcinoma and once in a post-lobectomy for multiple abscesses; both were diagnosed and relieved before roentgenograms could be obtained.

Postoperative empyema is an unlikely complication today. Prior to the use of penicillin, the "mycins," and later antibiotics, it was more common. Formerly, it was necessary to drain the empyema and then obliterate the cavity by secondary thoracoplasty. Some authorities advocate open drainage for one year. If no evidence of metastasis has developed in that time, the thoracic cavity is then obliterated. Empyema may or may not be associated with bronchial fistula. We have had 2 cases, one without bronchial fistula, and another in which a bronchial fistula subsequently developed, probably secondary to the infection.

Kent⁽¹⁰⁾ recently reported 16 cures in 19 patients with empyema treated by drainage and antibiotics, without thoracoplasty. Roentgenograms are of the utmost value in following these cases. The too rapid filling of the thoracic space between the third and fourteenth day may indicate infection.

A rare but serious complication is the introduction of oxygen into the gastrointes-

tinal tract. This may follow the insertion of the nasal tube delivering oxygen, past the nasopharynx and into the esophagus. It has also resulted from the connection of the oxygen to a Levin tube by some inexperienced attendant⁽¹¹⁾.

Figure 7 illustrates a case in which the complication was probably initiated by the former method. The patient's nasal catheter was removed, cleansed, and replaced, as is customary, every eight hours. Twenty minutes after the second change, the house officer was called because of a marked change in the patient's condition, including cyanosis, dyspnea, absence of pulse, and the loud passage of flatus by rectum. The officer noted terrific abdominal distention. He stopped the oxygen and immediately inserted a Levin tube. Four to 5 liters of gas were removed from the stomach, with dramatic improvement in the patient's condition. The roentgenogram made shortly thereafter shows a distended bowel with a pneumoperitoneum. Exploratory laparotomy is indicated in such a condition. Pneumoperitoneum without a distended bowel may occur if the stomach ruptures very high.

We frequently receive roentgenologic reports containing extensive description of subcutaneous emphysema. This finding is of

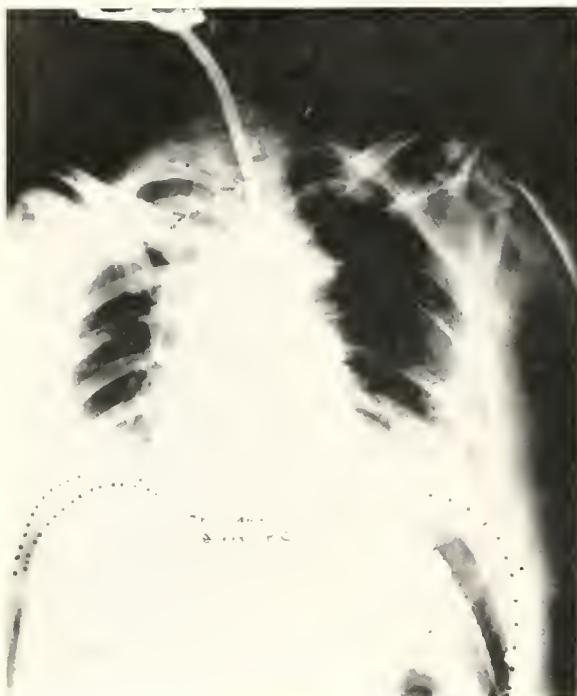


Fig. 7. Air under diaphragm. Abdominal distension following passage of nasal oxygen tube into the esophagus.

no importance. Mediastinal emphysema, however, is of considerable importance.

Postoperative consolidation of the remaining lung is not infrequent and is, of course, a serious complication. Areas of density in the lung most often indicate blocked bronchi, which produce atelectasis and infection. Active measures should be instituted to clear the bronchus. The source of the block can be failure of the patient to cough and raise bronchial secretions. A most important and serious block occurring during operation is a result of spillover of blood or pus from the lung being resected. This can result in sudden death, localized atelectasis, or a widespread pneumonia.

Another problem was exemplified by a patient who had had repeated hemorrhages from a large bronchogenic cyst. During the operation the anesthetist had great difficulty keeping the trachea free of blood arising from the cyst. Postoperatively, a widespread pneumonia developed, with consolidation of the lung and a shift of the heart and mediastinum. Much of this condition may have been due to blood spilled into the opposite side. Better tracheal toilet or putting the patient in a prone or supine position during

the operation might have avoided the complication.

The Danger of Delayed Diagnosis.

We would like to emphasize the importance of early exploration when the diagnosis is uncertain. In reviewing cases in which no operation was performed, we found many reasons for the failure to operate. I believe that in general, when the patient is uncertain as to whether he should submit to exploration, it is because his physician is also uncertain and hesitant about advising exploration. Figure 8 shows a picture which almost any of us would call carcinoma. The physician was worried about the seriousness of a chest operation. He called into consultation a surgeon who did not do thoracic work. Together they watched this man for six weeks before advocating surgery.

Figure 9 shows a carcinoma which was allowed to go on, without operation, to blockage of the bronchus, abscess, pneumonitis, and death.

A negative thoracic exploration is probably associated with more discomfort than a negative abdominal exploration, but it carries low morbidity and mortality rates. The patient is more quickly ambulatory, his ingestion of food is undisturbed, and pulmonary embolism after thoracotomy is extremely rare.

We have explored the chest eight times for probable carcinoma and not found it. What we did find in every instance, however, was a lesion which required surgery. All the patients have been well since operations. Delay in trying to establish an exact diagnosis was unnecessary. While such a diagnosis is ideal, for practical purposes one need only decide if the problem is medical or surgical.

No one wants to resort to surgery in the case of a simple abscess or pneumonia, but it is equally unjust to the patient to wait too long if such a lesion does not clear completely. A great many abscesses are due to blockage of a bronchus by a tumor. Many delays are due to a temporary diagnosis of virus pneumonia. Wynder^(1,2) states that "a diagnosis of virus pneumonia in a male patient of cancer age, who is a heavy smoker, is a very very dangerous diagnosis." Antibiotics, though necessary in preparing the patient for operation, do to carcinoma of the lung what antacids and Banthine do to a carcinoma of the stomach: give temporary

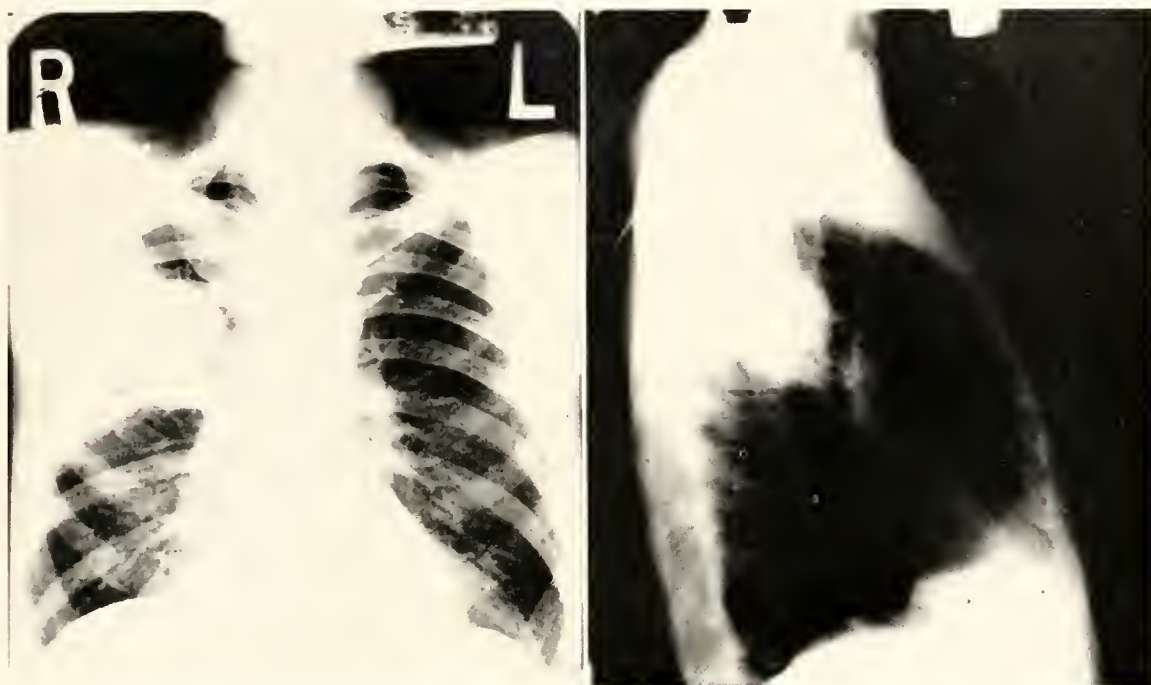


Fig. 8. Carcinoma of the right lung. The patient was under observation for six weeks before surgery was advocated.

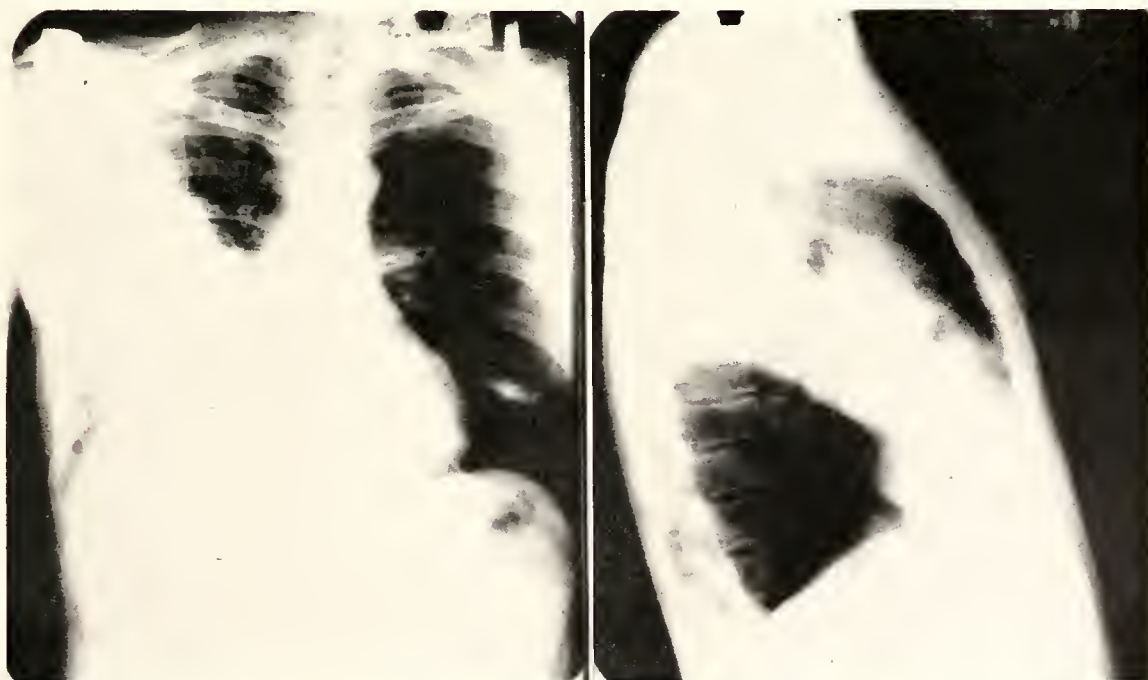


Fig. 9. Carcinoma of the lung with bronchial obstruction, abscess, and pneumonitis. Surgery was never considered.

relief and delay the real diagnosis. The average time lapse between the presence of the first symptom and competent treatment in carcinoma of the lung is 10 months. The patient is responsible for about one-half of this delay and the physician the other half. Let us correct our half. Ochsner and De Bak³ reported 40 per cent of five year survivals in patients with no lymph node involvement and no extension to adjacent structures; and 12.5 per cent when either of these were present.

Churchill and Sweet reported 40 per cent five year survival in patients without lymph node involvement and none with involvement. Unnecessary delay gives time for extension and metastasis. Allison reports that only 7 per cent of 1050 patients with bronchogenic carcinoma seen between 1941 and 1948 were resectable. *Who knows when metastasis will begin? In the diagnosis of cancer, in the treatment of cancer, the eleventh hour is now.*

Summary

1. Cancer of the lung is a frequent disease.
2. Roentgen examinations, cytologic examination of the sputum, and bronchoscopic examination, should be done early.
3. Virus pneumonia in a patient of cancer age should clear completely in three to six weeks. Otherwise exploration is indicated
4. Pneumonectomy in cases without lymph node and adjacent tissue involvement has a five year survival rate of 40 per cent.
5. Exploratory thoracotomy in the absence of a positive preoperative diagnosis is usually necessary. The lesion usually requires surgery even if it is not malignant.
6. Negative exploration carries low morbidity and mortality rates.

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Discussion

Dr. Robert P. Barden (Philadelphia): I have enjoyed this symposium very much, and would like to make some remarks about each paper.

Dr. Baylin spoke briefly about anomalies in segmental distribution. It seems to me that surgeons are becoming increasingly aware of the difficulties involved in doing segmental resection, because of the anomalous development of some of these segments. Certainly, some patients have many more than the expected number of segments, and they are distributed in a very uncertain manner. I do not know how that can be determined beforehand.

I would like to ask Dr. Baylin, and perhaps some of the other discussants, to say something about the treatment of segmental lesions. That problem bothers us a great deal in our chest conferences. When one sees a sharply localized segmental lesion, either atelectasis or pneumonia, which does not change, the question of an old inflammatory process, particularly if it is in the upper lobe, versus neoplasm, often comes up; and we have to make the difficult decision as to whether or not resection should be done.

Roentgenographically, the lesions often appear to be purely inflammatory, and without any other aids in the diagnosis of neoplasm, it is difficult to decide whether to operate or not.

There is no doubt of the existence of such a thing as virus pneumonia, which, in my experience, is a bronchial disease. It regularly leads to segmental shadows, primarily partial collapse. I would like to ask how long one should wait before resorting to bronchoscopy in these cases? Quite often the segmental shadows will persist three, four, or six weeks, but eventually clear up and give the patient no further trouble. This is a practical point that the internist has to face.

Dr. Cooper's subject is difficult to discuss because so much has been written about carcinoma of the lung that it is hard to say anything new about diagnosis. I would like to elaborate on one point that he mentioned briefly: the importance of the history. I think that it is supremely important for the radiologist to talk to the patient and learn whether he has a wheeze and some blood-streaked sputum. Often the patient is sent in merely because of a cough, and only by careful questioning is a history of blood-streaking in the sputum elicited.

I would like to emphasize that the radiologist is a consultant, and if for any reason the important aspects of the history have been overlooked or have not been submitted to him, he has to dig them out.

It has been our experience that bronchography has not been very helpful in carcinoma of the lung. Those tumors which one can show as filling defects in the larger bronchi should be visible through the bronchoscope, and the peripheral tumors which produce obstruction are almost always associated with bronchiectasis. That is what the bronchogram shows, so that the discovery of bronchiectasis may tend to cloud the issue rather than clarify it. Another practical point is that when you fill the lung with oil, subsequent studies are rather unsatisfactory.

Another troublesome differential diagnostic problem is the question of so-called oil pneumonia. I think the only patient in my experience that died following a pneumonectomy for a false preoperative diagnosis of carcinoma of the lung had a so-called granuloma due to oil. That point has been brought up in the literature also, I think. Although I do not believe that it constitutes sufficient reason for deferring exploratory thoracotomy, the finding of oil globules in the sputum should at least alert one to the possibility that the lesion may be a granuloma rather than a neoplasm.

Dr. Gilmore's paper is a practical addition to our

knowledge. I am somewhat concerned about the difficulty of distinguishing solitary metastasis, such as hypernephroma, from primary carcinoma of the lung. Certainly, primary hypernephroma in the kidney quite often becomes necrotic, and I think the same thing may occur in metastasis. I would not object to removal of a solitary metastasis from a hypernephroma, by any means, but one should not overlook a primary kidney tumor if one is present. A histologic distinction between primary carcinoma of the lung and hypernephroma may be a little difficult. I would also suggest that in patients with solitary tumors, even when primary carcinoma of the lung can be diagnosed preoperatively, a careful attempt to find metastasis be made. In other words, if the tumor of the lung is primary, hematogenous metastasis to the rest of the lung or to the bones is probable. Quite often the showing of small nodular metastases in other parts of the lungs poses a difficult problem for radiologists. I believe that body section films and a skeletal survey can be helpful.

We are seeing more and more metastasis in bones from carcinoma of the lung. I do not know offhand what the incidence is, but I know that it is increasing.

Occasionally, it might be useful to determine whether the solitary necrotic tumors contain fluid. It is true, as Dr. Gilmore stated, that one might not be able to demonstrate fluid, but the tumors usually communicate with the bronchus, which may be temporarily obstructed, and I think that an attempt should be made to evacuate the tumor cavity by having the patient cough, and by dependent drainage, because the character of the inner wall of the cavity can be so important in distinguishing the benign from the malignant abscess.

Dr. Schiebel's talk, dealing with postoperative care and the importance of getting roentgenograms every day, is the kind that radiologists need to hear. The question of determining when a patient has such a low pulmonary reserve that pneumonectomy—or lobectomy, for that matter—would leave him a pulmonary cripple or cause him to die of pulmonary insufficiency is extremely difficult to decide, and I agree that quantitative tests of pulmonary function do not help any more than qualitative clinical judgment does. I want to emphasize, however, the fact that no two patients follow the same course after an operation. I think it is extremely difficult to know where to draw the line and say that a patient cannot have a resection because his good lung, or his uninvolved lung, will not stand it. It is much like trying to predict which obstetric patients can deliver spontaneously and which are going to have serious dystocia.

I would like to ask Dr. Schiebel if he thinks late postoperative compensatory emphysema, or overexpansion of the remaining lung following a pneumonectomy, is a hazard, a drawback, or a matter of indifference.

Most surgeons agree that at times one resects a carcinoma of the lung for purely palliative reasons. In an infected lobe behind an obstruction, even with extensive mediastinal involvement, the patient may be better off without that focus of infection. The situation is much like that in the esophagus, when one resects a lesion in order to keep the patient comfortable, even though one does not expect a cure.

Dr. Baylin: I am glad that Dr. Barden stressed the fact that we are doctors and consultants and not picture readers. It seems to me that one's first consideration is not necessarily the x-ray. Get all the information possible: How did the trouble start?

What has been done to the patient? What can be done with skin tests and sputum tests?

Dr. Cooper: I surely appreciate Dr. Barden's remarks, because I think that the internist, the radiologist, and the thoracic surgeon must learn to work as a team in dealing with these lesions. The thoracic surgeon is being called in much earlier than heretofore. Dr. Baylin has also brought out another point that I tried to make—that we must attend to these lesions as soon as possible. Again, the radiologist and the surgeon must wait until the medical man first recognizes the possibility.

The decision as to how long to wait in a diagnosis of virus pneumonia before suspecting the possibility of malignancy, I think, is largely the responsibility of the physician in charge. He knows how acute the onset was, and whether it was typical of pneumonia; if it was, he is justified, perhaps, in waiting three, four, or five weeks. When the diagnosis of virus pneumonia is used as catch-all, however, it is sometimes unwise to accept it. In that case, I believe that bronchoscopy should be used within two or three weeks' time. Certainly, in older persons, we cannot afford to wait when the history and onset are not suggestive of virus pneumonia.

I would discourage the use of bronchograms, as Dr. Barden has intimated.

The oil pneumonias are very likely to be confused with carcinomas, I am sure. In fact, I remember one case of suspected carcinoma that turned out to be an oil pneumonia. We often forget that possibility, which frequently can be brought out in the history by asking the patient whether he has used oil or nose drops at frequent intervals, or taken large amounts of mineral oil. At least we can suspect this condition and inform the radiologist of the possibility in the differential diagnosis.

Dr. Gilmore: I realize that segmental metastases to the lung should be searched for, with the kidney and testicles as predominant foci. We were concerned primarily with the ones which had excluded primaries after exhaustive studies. I am a firm believer in bronchoscopy with smears, using pathologic technique.

Dr. Schiebel: In regard to compensatory emphysema, we have not been disturbed by any postoperative compensatory emphysema in any of our pneumonia patients. In performing a pneumectomy for a disease such as tuberculosis, or in taking out lung tissue, one has to worry about distention of the remaining lung, but we have not had any difficulty with our postoperative pneumectomies for carcinoma. We have performed a number of resections that were purely palliative. I simply did not include them in this discussion.

Dr. Cooper: I have had no experience with aspiration of tumors, Dr. Barden, and what little I have read about it has not convinced me of its value.

The whole process of living, in its material realm, consists in everlastingly adjusting to environment. Adjustment includes not merely the erection of defenses against hurtful influences of environment, but also the alteration of environment by the organism to make it more suitable for the organism. Good adjustment is health; poor adjustment is illness. Successful adjustment is integration, unsuccessful is disintegration. When adjustment fails completely, life ceases or, if you prefer, death takes place. It is a case of root hog, or die."—Means, J. H.: The Integrative Action of the Endocrine System, *Ann. Int. Med.* 34:1312-1313, (June) 1951.

THE USE OF PITRESSIN IN THE TREATMENT OF SCHIZOPHRENIA WITH DETERIORATION

LORANT FORIZS, M.D.

BUTNER

At present very little is known about the causes of mental disease, particularly with regard to schizophrenia. Whole books have been written on the subject, with the final conclusion that there is no uniform classification, that there are no clearly defined subtypes, and that there are no known causes that would satisfy the majority of medical men.

Therapeutic Factors

The lack of knowledge pertaining to the causes and pathology of schizophrenia is even more true of its treatment. Total or partial cures have been reported from hundreds or thousands of methods, ranging from the snake pit of olden times, and the ducking of the Middle Ages, to the different varieties of shock and exclusive psychoanalysis at the other end of the scale. Last but not least, a number of spontaneous remissions have been reported, the percentage varying in the writings of different authors.

Changes in the clinical picture may be due to changes in the patient's environment, general physical condition, diet, age, to incidental infection, to a transfer from ward to ward, to the personality of the attendant, to so-called "total push" programs, or even to such factors as death and divorce in the family of an institutionalized patient. Perhaps the safest approach to the treatment of schizophrenia is expressed in the simple statement that *something* happens to the patient under a well controlled therapeutic regimen. What this "something" is is very hard to define.

Experience at Butner

It is a known and fairly well accepted fact that patients with chronic schizophrenia show a rather steady pattern several years after the onset, and are therefore better subjects for experimentation. Changes in this more or less steady pattern occurring under experimental conditions can be attributed more accurately to the experimental factors.

The North Carolina State Hospital at Butner was in an exceptional position in this respect. One thousand, eight hundred and forty-five patients had been admitted from the State Hospital at Morganton and the State Hospital at Raleigh. All the chronic forms of mental illness were seen in this group, a large proportion of whom had chronic schizophrenia.

As the staff was built up and organized, the usual forms of therapy were instituted. Occupational therapy was begun with the purpose of helping patients to develop skills and interests, and thus to become more socialized. Patients were also encouraged to participate in a recreational program which included singing, dancing, and various group games. Attendants and nurses were encouraged to activate the patients in every way possible. As a result of this program of activity, which is a form of the "total push" pattern, a total of 250 patients out of the 1,845 were able to return home within three and a half years, but of course there is still a large number who cannot be touched by this type of treatment.

Shock therapy

During the past two years two forms of treatment in particular have effected a considerable change in the outlook for deteriorated schizophrenic patients. Although electric shock treatment had been tried in a number of cases, the results in chronic schizophrenia were poor, as was to be expected. Insulin treatment was not started, since it had already been well established throughout the world that unless the treatment is begun within six months or so of the onset of the illness, there is very little chance of affecting the outcome in any way.

A third method of treating these chronic cases, the subject of this presentation, is by Pitressin, the hormone in the posterior lobe of the pituitary gland. The report of four cases will emphasize what is being done in cases that otherwise would be considered hopeless.

The Physiologic Basis of Pitressin Therapy

For some time it was believed that some biologic antagonism between schizophrenia and epilepsy might be responsible for the apparent clinical improvement that followed the introduction of Meduna's Metrazol shock treatment. The significance of the changes

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From the North Carolina State Hospital, Butner, North Carolina.

in the water metabolism in epilepsy was already known. In 1936 I started experiments to prove that overhydration by great doses of water and Pitressin might produce epileptic convulsions in schizophrenic patients, thereby providing a different mode of treatment for this disease. In the light of the general adaptation syndrome described by Selye, however, these experiments may have a different significance from that of my original hypothesis. They indicate that emotional stress has a more or less specific place within the general adaptation syndrome, the channels of which are somewhat different from those of other types of stress.

The spectrum of the response to stress, or at least a certain sector of it, has been analyzed extensively. Significant changes in water metabolism have also been registered, but no explanation as to the mechanism of these changes has been made. In spite of several statements by Selye and other workers, the anterior pituitary lobe and the adrenal cortex were considered in almost all of the publications, with hardly a reference to the posterior pituitary lobe, which in this specific case of emotional stress might be more significant than the other two groups of hormones. Unfortunately, our hospital is not yet equipped for complicated laboratory investigations, but it would be desirable if adequately equipped research centers would turn their attention in this direction.

Technique and Results

The treatment consists of daily injections of 10 units of Pitressin for the first 10 days, and 10 units every other day during the following period. There are no dietary restrictions, but some increase in the fluid intake seems to be justified.

Under careful observation, a patient receiving Pitressin usually shows improvement during the first three weeks of treatment. This improvement is followed by a relapse of anywhere from several weeks to several months. We feel, however, that this initial improvement is an adequate index to later improvement, after several months of treatment.

The patients in our series who have shown improvement received Pitressin for as long as six months or a year, some even after discharge from the hospital. In a few cases we tried to stop the treatments, and definite

relapses followed. In a former series, I discontinued Pitressin with some of the successfully treated patients when they reached the premorbid level; however, it seems to me that this treatment is much like the use of insulin in diabetes.

We have not continued Pitressin alone for longer than four months unless some improvement has been shown by that time. In many cases, if a patient has not shown any initial improvement after about a month of treatment, we combine the use of Pitressin with electric shock or insulin. In some cases this combination resulted in improvement which had not been brought about by either electric shock or insulin alone. The convulsions under the combined regimen seem to be more violent. It is also noticed that the same pattern of initial improvement followed by relapse and later improvement occurs with this combined treatment, as it does with Pitressin therapy alone.

In our experience the indication for this type of treatment is chronic schizophrenia, with simple deterioration perhaps marking the group which responded most favorably. Of about 60 evaluated schizophrenic patients, some two thirds showed at least some improvement, and about one third of the total showed significant remission, several having been able to adjust to life outside the hospital. There are no significant side effects except for some paleness and negligible dizziness, followed by slight hyperactivity of the bladder and intestinal functions.

Selected Cases

The patients of this experimental series were almost entirely chronic cases of long duration, and were selected for this transfer partly because of their more or less steady course and pattern.

The majority were drawn from the so-called problem group—patients constituting management problems because of noisiness, combativeness, destructiveness, feeding difficulties, and repeated escapes (many had been long forgotten by their families); patients who, in psychiatric jargon, used to be called "deteriorated schizophrenias."

Case 1

A 41 year old white male had been admitted in 1932 to a state hospital in another state. The summarized amnesia states that in 1929, after influenza, he became seclusive and gradually, in the course of six months, displayed such symptoms as occasional irritability, prolonged daydreaming, unmotivated laughter, and loosely held delusions, both

somatic and general, with very slight paranoid trend. A partial remission had occurred.

Prolonged observation, however, showed that in the year following admission the patient had had innumerable phantasies or obsessions, mostly of a sexual nature, such as sadistic ideas of beating, biting, and whipping women during intercourse, fellatio, homosexual relations, and masturbation. He felt that his father and mother were not his parents, that he had been adopted for profit, that he was the grandson of Francis Joseph, emperor of Austria-Hungary, and that his "foster" parents were Jewish. He indulged a great deal in masturbation, looking in the mirror, and spent hours looking at pictures of movie actresses and bathing beauties. His behavior was variable, occasionally upset and excited, and requiring sedation. He was usually seclusive and rarely talked, but could be drawn out to talk of college days although his answers were brief.

The course in that hospital since 1935 is summed up as follows: "In 1937 and again in 1938 this patient was given full courses of insulin therapy with little improvement. In February and in September 1938 he received two courses of Metrazol, each with slight improvement in the amount of care required for his management."

During his first year he was seen quite regularly by one therapist who administered modified direct analytical therapy with some improvement, but never to the point of establishing a really communicative relationship. From 1935 until June, 1949, he was in a disturbed ward, was frequently nude, and had intervals of frank auditory hallucinations and physical attacks on other patients. However, he was usually passively cooperative, withdrawn, and engaged in group activities with no obvious sign of human contact.

In 1948, for an unexplained reason, he began to do crossword puzzles with one of the male nurses and became progressively more social, but never to the point of speaking beyond a muttered request for cigarettes, dictionary, and the like. In June 1949 he was transferred to a well behaved ward, where he did well. Physically, he has had no defects other than periods of obesity from overeating.

He was admitted to Butner on September 10, 1950, where at first he showed a total disinterest in his surroundings. His speech was hardly understandable. He spent most of his days in bed, constantly reading, but giving the impression that he was only looking at the papers and books without really understanding what he was reading. There was no spontaneous conversation, and nothing could be learned about his thought processes and their possible delusional or hallucinatory contents. However, deterioration seemed more apparent than real.

Shortly after his admission he was put on Pitressin therapy. A few weeks later he was up and about, though he was still rather untidy in his personal habits and appearance, and showed no interest in his surroundings. About one month after the beginning of Pitressin therapy, he became more alert and more willing to accept occupational therapy, in which he gave only a fair performance but showed adequate ambition. Toward the end of the second month of treatment, this patient's mother notified us that she had seen a significant improvement in his condition. He was encouraged to visit his parents, and shortly afterwards his general interests grew, his appearance became quite tidy, and he showed a gradual improvement in occupational therapy, as well as in his speech, ideation, and actions. He has almost completely come out of his withdrawal, though his speech is still somewhat muttering in character. He spends several days of the week at home now, and plans are being made for his vocational rehabilita-

tion. He also carries on an extensive correspondence with different members of his family, something which he had not done for the last 17 years.

Case 2

A 60 year old white male was first admitted to a mental hospital in 1919. The first record we have lists him as a "deteriorated schizophrenia." In 1927 he already was "destructive to a very disagreeable degree and had to be kept in seclusion to keep him from tearing the beds to pieces." He was quite untidy, but not noisy. He used to collect junk in his pockets, and for the last 10 or 15 years he had gradually become more and more aggressive. He spent most of his time in a strong room. His last year's progress note states: "At times he gets very much disturbed, especially in the presence of women, tears up everything beginning with his own clothes and ending up with bed linen, bed springs, and even the floor. He provoked many fights, got lacerated several times and does not keep the dressings on."

He was treated with Pitressin for 8 months, during which he gradually became calmer, less destructive, and almost completely lost his aggressiveness. He did not have to be kept in seclusion, and, although he kept to himself, spent most of his time with the group, peacefully muttering to himself, with a rather pleasant smile upon his face. He still collected junk and continued to destroy bed linen. It was decided to discontinue the Pitressin, since the only improvement seemed to be that he was less hostile and not aggressive at all. After about one month without Pitressin, he became irritable again, got into fights with other patients, and struck another patient with a piece of furniture, causing him to die of a skull fracture. He was put on Pitressin treatment again, and in about two weeks' time he quieted down and has not been in a fight since.

Case 3

A 47 year old white woman was first admitted to a state hospital in 1946. The onset of illness was gradual, and was characterized by persecutory delusions (colored servants plotting against her) and probable hallucinations. Her mental status on admission showed a talkative, strongly deluded person who complained extensively about persecution by her sister-in-law. She was also inappropriate in her attire, and rather incoherent at times.

The hospital course was characterized by the same talkativeness and mild excitement; and delusions of poisoning developed while she was in the institution. She appeared to be strongly concerned with her physical health. As a rule she was nude, obviously exhibitionistic, and at times elated. At other times she was irritable, especially in the presence of nurses and attendants whom she called "morphodites." She believed that all the female employees were "her morphodites" who tried to "tempt" her or attack her in homosexual ways.

After about two months of Pitressin treatment she quieted down and became pleasant, even in the presence of nurses or female attendants. She became quite easy to manage, and gave up her seducing behavior. At the same time, however, she acquired a new delusion, giving up her old one completely. In this new state she stated that she got married to an Army colonel, whom she later said was a congressman. She became very calm, superior in her attitude, especially in her speech, and rather submissive in her actions. She definitely ceased to be a ward problem, could even be kept on one of the best wards. At the present time she is scheduled to receive a combination of Pitressin and electric shock.

Case 4

A 38 year old white woman became ill about two and one-half years ago, and was treated several times in a private hospital with electric shock, to which she responded temporarily. Her diagnosis at the time was manic depressive psychosis. She was admitted to the State Hospital about one and one-half years ago with definite paranoid delusions concerning her own mother and husband. She also thought she heard voices. Her status on admission showed a rather confused young woman who claimed complete amnesia for the allegations of her history and showed pronounced emotional instability. She was sent home for short visits several times, and was returned with the complaint of confusion and silly behavior.

She was transferred to Butner on May 31, 1950. Here she refused to adjust to the hospital routine, did not go to meals, wanted to lie on the floor, and laughed inappropriately. She showed definite homosexual tendencies, and at times was perplexed, emotionally unstable, and displayed a fairly systematized paranoid construction concerning her husband, whom she wanted to marry another girl more feminine than she. She was put on Pitressin therapy six months ago, during the course of which she became even harder to manage at times, especially during the second and third months. She was overtly homosexual, and got into fights from attempts to molest her fellow patients. After the end of the fifth month, electric shock treatment was added to the Pitressin routine. After only two or three shocks she showed a significant improvement, and after the fifth shock cleared up completely. Her behavior became completely conventional and her conversation coherent, relevant, and logical. She claimed complete amnesia for her whole psychotic episode, and appeared to be normally happy on account of a very adequate insight into her condition and with the feeling of relief over what she termed complete cure from her illness.

Comment

In the first of these cases, gradual improvement was seen in a moderately deteriorated patient, whose illness had shown some spontaneous improvement. The grade of this improvement, however, was far below the level of his present status, which is approaching the state at which vocational rehabilitation can be tried. The patient's improvement can best be described as abandonment of his withdrawn position, reestablishment of ties with the outside world, widening of interests, and increase in general activity, mental and physical.

In case 2 a chronic, badly deteriorated patient calmed down and became completely peaceful. Although there was no change in his destructiveness of furniture and bed linen, he became definitely more sociable and less aggressive toward persons. The unfortunate incident which happened when Pitressin therapy was discontinued could serve as negative control, since resumption of the

treatment was followed by a new period of calm.

Case 3 appears to be the most interesting. Here we have a chronic condition marked by fixed delusions, as a consequence of which the patient was hard to manage, and was definitely a ward problem. The picture changed rather rapidly during the treatment. Outwardly she became calm and easy to manage, and inwardly she changed her delusion, a rather infrequent occurrence in cases of similar duration. This aggressive and paranoid patient, suffering from the fear of homosexual attacks, obviously was under the influence of her own homosexual panic, which she fought off by projection. In her new delusional world she found a more satisfactory solution—marriage to an extremely masculine imaginary man, and submission to the female role. Apparently she was not threatened by a break-through of her former homosexual tendencies. Her defenses were fortified, resulting in a more satisfactory equilibrium, and she became more peaceful in mind and body.

The fourth case represents a similar homosexual conflict which was rather rigidly held in check before the treatment, and broke through the defenses only occasionally in the form of overt homosexual behavior. During the treatment the homosexual tendencies became more pronounced, more frequent, and, we might say, were acted out without inhibition. The patient got into more and more trouble with her fellow patients, but the few electric shocks provided the necessary supplement to the therapeutic process, which made it possible for the patient to "forget" her conflict and thus appear "well" again.

Conclusion

It has been recognized that patients in state hospitals need more than just *care*, and there is consequently a growing emphasis on the *treatment* of these patients. We believe that these experiments with Pitressin may contribute to this cause.

It needs yet to be proved on a large scale that really something happens in the way of improvement to the schizophrenic patient as a consequence of this treatment. By wider application many ward problems might be solved; more patients might be made happier, and some even would be able to return to their homes and readjust to life outside the institution.

Discussion

Dr. Robert William Southerland (Charlotte): Most psychiatrists find it discouraging to face a large group of residual schizophrenic patients after the curable cases have been filtered out. The expense of sustained treatment becomes too great for most individual families to carry alone, and institutional care by state hospitals becomes necessary. However, the behavior of such patients makes them an economic drain on the budget, even in state hospitals. It is to the credit of men in legislative circles that they keep trying to supply funds for more than custodial care in cases of long duration.

In addition to reducing the costs of custodial care, the author has provoked interest in a relatively uninteresting medical problem. Dr. Forizs points out the "steady pattern" noted in patients who have had schizophrenia for a long period. I have seen progress notes with quoted delusions expressed in identically the same terms for 15 years. I have also seen what the author refers to as "something" which "happens to the patient," even on a ward for disturbed patients with no specific therapy in progress. The fact that such chronic cases at times have remissions without visible cause directs the imagination to chemical changes in the patient.

Dr. Bela Mezey reported 34 cases of schizophrenia treated by Petrovich's method in 1941 at Gyulai Hospital, Budapest, Hungary. He had 50 per cent improvement or cures. Four out of 5 patients of advanced schizophrenia were cured, and 1 was improved. The treatment, therefore, is worthy of further trial despite his small series. Five tenths cc. of Pitressin was first given by vein, and the dosage increased by 0.5 cc. each treatment until the women received 7 cc. and the men 8 cc. three times weekly. The patients were kept in bed, and no food was given before treatment. The course varied from 14 to 30 treatments. Two patients were given 40 treatments in order to obtain data on ill effects, but none were produced.

Insomnia Complicating the Neuroses. Insomnia often complicates the psychoneuroses. Although it may not be one of the symptoms of which the patient chiefly complains, it is common for patients undergoing psychotherapy to sleep even less well than before starting treatment. This is understandable, as patients under treatment are being forced to come to terms in full consciousness with psychic elements which, on account of their unacceptability to the person as a whole, had previously achieved incognito status through repression and other psychic mechanisms. Frequent bad nights interfere with psychotherapy unnecessarily; moreover, the state has been coped with. It is therefore a wise practice to treat such incidental insomnia symptomatically by means of drugs.—Strauss, E. B.: *Insomnia*, Brit. M. J. 1: 350-351 (Feb. 17) 1951.

Agrypniaphobia. Perhaps this is the most common cause of insomnia. By this term is meant a modishly anxious preoccupation with the idea of sleeplessness and its supposed "inevitable" evil consequences. Baudouin's "law of reversed effort" (if the will and the imagination are at cross purposes, imagination wins the contest) is well illustrated by this type of insomnia. By suitable psychotherapeutic techniques the practitioner can help these patients to acquire an attitude of emotional indifference to whether they sleep soundly or not (see *Modern Treatment in General Practice*, 1944, p. 178).

A SIMPLIFIED TECHNIQUE FOR STAINING THE VAGINAL SMEAR FOR IMMEDIATE APPRAISAL OF ENDOCRINE ACTIVITY

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MARSHVILLE

Any new laboratory test, therapeutic technique, or change in the routine office procedure of the modern doctor must be accepted by the individual practitioner before it can be of any value to him or to his patients. The following modification of a previously existing laboratory procedure is offered in order to make the procedure acceptable to the busy practitioner, whether he is a gynecologist, surgeon, or so-called country doctor, and whether he practices in a large clinic with unlimited laboratory facilities, or in a one room office without assistants or even running water.

History of the Technique

The study of the sexual cycle in animals by means of the vaginal smear was first introduced in 1917 by Stockard and Papanicolaou⁽¹⁾. Using this same method on ovariectomized mice, Allen and Doisy⁽²⁾ in 1923 developed an exact procedure for demonstrating the action of the ovarian follicular hormone. This procedure was applied to the human subject in 1929 by Dierks⁽³⁾, who was able to induce hypertrophy of the vaginal epithelium in a young woman whose ovaries had been removed.

Papanicolaou⁽⁴⁾ again in 1933 began the study of the vaginal smear in relation to the sexual cycle, and with Shorr⁽⁵⁾ in 1936 reported an invariable correlation between the composition of the smear and the structure of the vaginal epithelium, which Geist⁽⁶⁾ confirmed in 1939.

At about this same time Van Dyke and Chen⁽⁷⁾ made quantitative estimations of the glycogen content of the endometrium, using the female macaque. These were repeated on the human endometrium in 1940 by Zondek⁽⁸⁾; and in 1942 by Randall and Power⁽⁹⁾, and in more detail by Spyker⁽¹⁰⁾.

Papanicolaou's technique^(5, 11) and Shorr's modification⁽¹²⁾, as an indication of body activity not only in the vagina but in every hollow viscus of the body, opened up a new

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field in the cytologic study of exfoliated cells, and has now extended beyond a hormonal study to include the highly specialized study of carcinoma of these organs.

The Need for Modification

These techniques, remarkable as they are, require freshly made stains, specially prepared smears, and at least 15 minutes (Shorr) to 20 minutes (Papanicolaou) actual staining time. As one editor put it: "In spite of Shorr's⁽¹³⁾ insistence on the simplicity of the method, its intelligent use, except perhaps as an index of estrogenic activity, implies a degree of cytological know which few practicing gynecologists possess."⁽¹⁴⁾

As a general practitioner in a rural area, with limited time and extremely limited laboratory facilities, I cast about for some method that would be better adapted to my particular needs. Greenblatt's pinacyanole stain⁽¹⁵⁾ did not quite serve my purpose. I next tried Mack's technique⁽¹⁶⁾ of turning a wet vaginal smear over Lugol's solution, in which process the iodine vapor stains the glycogen of the exfoliated cell, thus giving an index to the estrogenic activity of the patient. This technique required five minutes staining time, no more and no less, for accurate results, and even then the thickness of the smear and the relative humidity of the weather resulted in marked variations in the staining qualities.

By making a modification in Mack's technique, I developed a procedure for making a *quick* survey of hormonal activity in the female that should be acceptable to the general practitioner, gynecologist, and endocrinologist alike. The entire process—including making the smear, staining, and reading—can be done in less than one minute. No special stains are required, and there is no staining of the sink.

Description of the Technique

Obtaining the smear

The cotton applicator or suction pipette can be used for making the smear, as in any other staining method. Or, in a routine pelvic examination, as the examining finger is withdrawn from the vagina, the distal phalanx can be flexed and held against the vaginal wall, entrapping sufficient secretion in the wrinkle of the glove. This secretion then can be smeared on a glass slide by one movement of the hand before the glove is removed. The smear can be used immedi-

ately or can be saved until other procedures are completed. It can be made as a routine part of all vaginal examinations, and later used or discarded as indicated by further examination or history.

Staining

The staining is just as simple. The stain itself is made of roughly 1 part Lugol solution to 20 parts tap water, a dilution of 1:15 to 1:30 serving just as well. The ordinary half-ounce dropper-bottle used by most druggists makes an excellent container. The dropper is filled with Lugol solution and emptied into the bottle, which is then filled with water. This dilution can be varied as experience indicates.

One or two drops of the stain are dropped on the smear, which is immediately ready to read. There is no waiting period and no "staining, washing, and drying." Moreover, the slide is easily cleaned by shaking it under running water or merely dropping it into a pan of water.

Clinical Application

The interpretation is a little more difficult. In the case of a menopausal woman, however, a mere glance at the smear will indicate if all, or nearly all, ovarian function has ceased, or will disclose the degree of estrogenic response to previous therapy. In the younger patient, it will indicate which half of the cycle the physician is dealing with. In other patients, further study may be required. If time in relation to ovulation, or the height of progesterone, testosterone, or estrogenic therapy is desired, a more detailed study of the morphology as well as the staining properties of the cell must be made. Such a study may even require an additional minute or more, depending on how much detail is required.

Accurate interpretation will require some basic knowledge of the histology and physiology of the vaginal mucosa. It should be remembered that the vaginal mucosa goes through cyclic changes with the rise and ebb of endocrines in the system, in a manner similar to and synchronously timed with the changes in the lining of the uterus; and that the vagina continues to function after complete hysterectomy, and can be used as a simple indicator of the presence of estrogen, progesterone, or testosterone, whether produced by the patient herself or added by the therapist.

Histology of the Vagina

A cross section of the vaginal mucous membrane will show the lowest layers, or "basement membrane," to be composed of round or oval cells called "basal cells," with large nuclei. As these cells mature under the influence of estrogen, they are pushed outward by newly formed cells behind. The cytoplasm enlarges, making the nucleus relatively smaller, and, as the cell is pushed nearer the surface, it becomes thinner and flatter and the nucleus smaller, until at maturation it has become completely cornified, with a very small pyknotic nucleus. A healthy mucosa, then, under normal estrogen stimulation becomes rather thick and is covered by these cornified cells, which are resistant to disease; while a mucosa deprived of estrogen will become thin, atrophic, easily injured or macerated, and poorly resistant to trauma or disease.

This estrogenic influence also increases the glycogen content of the cell, which is quickly evidenced in our stain by its iodophilic properties, the cell taking a light to dark brown stain in proportion to the glycogen present. As the cell matures and cornification becomes complete, the glycogen tends to disappear, so that the mature cell will be large, thin, and slightly stained, with a very small dark brown, pyknotic nucleus.

Since all the various stages of this process of maturation may be seen in the same specimen, interpretation of the smear is made from those cells which predominate at the time that the smear is taken. The presence, then, of "basal cells" does not necessarily mean poor estrogenic activity when there is a predominance of fully matured cells; but the presence of cornified or precornified cells (even when in the minority) always indicates the presence of estrogen activity. Also, it must be remembered that the vagina is not regularly swept of its contents, and that other physical factors such as douching and sexual excitation are so variable that debris from a previous week or even a previous month may be present.

The Ovarian Cycle

During the first few hours after normal menstruation, only the very immature parabasal cells are present. As the ovarian follicle ripens and estrogen becomes more abundant, these cells become more mature, filling with glycogen and moving outward to final cornification^(5, 12, 17, 18, 19). This is called the "pro-

liferative phase" or "follicular phase," and usually lasts about 14 days. Smears taken during the last few days of this phase will show a high percentage of cornified cells, and the slightly less mature, precornified cells, in which the nucleus has not yet become pyknotic and the cytoplasm still takes the stain well.

On or about the fourteenth day the ovarian follicle ruptures spontaneously, the ovum is extruded in a process we call ovulation, and, in the remaining shell of this ruptured follicle, a blood clot forms and soon takes on a yellow color. This new mass, which we call the corpus luteum, becomes more organized and begins to produce another hormone called progesterone, or the luteinizing hormone. This hormone, although necessary for preparing the uterine mucosa for embedding and maintaining pregnancy, is antagonistic to the squamous cells of the vagina, and, as more progesterone is formed, these mature cells slough off faster than they are formed, making a cheesy discharge. Smears made during this time will show an increasing number of immature cells. Also, progesterone causes the cells to clump together and the cell edges to roll, so that in the last few days of the "luteinizing phase" the cells tend to show signs of deterioration, with a twisting and folding of the cell walls, causing them to appear elongated and angular. The cytoplasm fills with debris and in some clumps tends to become amorphous, as the cell outline loses its identity. Many of the immature cells are now prominent, appearing small and oval in the Lugol stain, with the nucleus taking the stain almost identically with the cytoplasm. These immature cells frequently dot the amorphous clumps of iodophobic cell debris, like brown spots in a yellow background, giving a typical "polka dot" appearance. Androgens, when present, produce a mucification of the vaginal epithelium, presenting a granular appearance between the cells in the Lugol smear.

As the cycle becomes complete, the uterus now begins a new cycle by cleansing itself, the resulting bleeding also partially cleansing the vaginal mucosa. A smear taken during the last few days of the cycle will show that menstruation is eminent, but the exact date of the expected flow cannot be definitely predicted. In fact, I cannot accurately differentiate the last few days of a normal cycle from the early days of a pregnancy, although Bonime⁽²⁰⁾ and others^(4, 21) describe

a specific navicular shaped cell, with enlargement and elongation of the nucleus and a thickening of the cell membrane, admitting, however, that recognition of these cells requires great experience, and that the same cells may even be found in the normal cycle^(20, 21). Also, the exact date of ovulation can be better determined by a graph of daily basal morning temperatures, although the vaginal smear will show that ovulation has occurred, and at times may be needed for confirmation in some irregular graphs.

Clinical Uses of the Smear in Appraising Hormonal Activity

Before giving any type of hormonal therapy one should always determine, where possible, how much and what type of hormone is required to bring the titer up to normal, since frequently, too much may be as bad as too little.

In the proliferative phase, if follicular formation is incomplete and the patient has not taken estrogen, glycogen in the cell is poorly formed and the cell fails to take up much iodine from the Lugol solution. Moreover, cornification is not complete, few of the cells ever maturing to the precornified stage.

On the other hand, if a sufficient amount of estrogen is formed but ovulation does not occur and progesterone is not added by medication, there is an additional piling up or hyperplastic cornification, which is only incompletely cleared when the menses occur. Such an anovulatory, progesteronally deficient cycle may vary from several months of amenorrhea in one patient to severe menometrorrhagia in another. Menstruation may not occur at all if the estrogen titer is sufficiently high, or bleeding may be almost continuous throughout several months. The typical period, however, when caused by estrogen withdrawal unaided by progesterone usually comes on irregularly at 30 to 50 day intervals, and lasts from eight to 10 days.

Both estrogen and progesterone are required to maintain a normal pregnancy. Too much of either may do little, if any, harm to the gestation, but a lack of either will cause or contribute to a spontaneous abortion. There seems to be some confusion among different authors as to what should be done for the threatened abortion or for the habitual aborter. All agree that something should be done, but from there each takes his own road, in different directions, and quotes impressive statistics to prove that

his method is the best, if not the only way of handling the situation. Some routinely give increasing doses of estrogen, such as stilbestrol, up to 125 mg. daily; others, just as routinely, give progesterone in doses of 10 to 100 mg. daily—orally, parenterally, or both. Still others take a mid-road attitude and quote figures to prove that both estrogen and progesterone should be given in all threatened abortions, and should be started with all habitual aborters as soon as the period has been missed a few days.

Either method seems to me to be unwarranted. I recommend that vaginal smears be regularly taken in all such patients, and that estrogen, progesterone, or both be given, as indicated, to each patient on an individual basis, completely discarding any method that tends to become routine.

Other reports have dealt with the use of the vaginal smear to detect pregnancy even before the first menstrual period⁽²⁰⁾, to identify the sex of the unborn child^(17, 22, 23), to detect threatened abortion^(24, 25), to detect beginning toxemia and eclampsia⁽²⁶⁾, to help identify various types of ovarian tumors and ovarian deficiencies as associated with hypopituitarism and cystic glandular hyperplasia^(20, 25).

There are many other uses for this rapid appraisal of hormonal activity, and once the gynecologist or general practitioner has learned to identify these cell indicators of his patient's response to estrogen or progesterone, whether produced internally or added medically, he will want to make such a smear a routine part of every office examination. He will feel that the extra minute required per patient is well repaid by the knowledge obtained. In addition, the fascinating patterns made by these cells, with their golden-brown color, are seldom equalled by an artist's brush.

Urethral Cells

For the occasional patient whom the physician may be in too great a hurry to examine, or the inherently fastidious or table-shy woman, he may elect to examine a few drops of urine on a slide, adding a drop of the staining solution. In such a dilution, though the vaginal cells will pick up the iodine with a slightly lighter shade than in the undiluted smear, they are easily identified. Several kinds of squamous cells are present in ordinary voided urine. The bladder cells do not ordinarily take any stain; the urethral

cells are fairly good indicators of the estrogen titer but poor indicators of progesterone or androgenic activity; while the vaginal cells, of course, show all three.

In the male urine, the urethral cells will pick up the Lugol solution, giving a fair index of estrogen in the body. This is of special interest in regard to those patients who are taking stilbestrol, and to obese men with large breasts.

Precaution

I would like to warn against the use of this stain, or any other stain, on the basis of a single vaginal smear, without a full consideration of available history and physical findings. I would recommend that analysis of the vaginal smear, like any other single diagnostic procedure, be considered as a building-block to be fitted in with other blocks, in corroboration of all other associated findings, to form a diagnosis. Also, as in other laboratory procedures, the more smears that are examined, the more nearly correct will be their interpretation.

The vaginal smear itself is not infallible; no staining method yet devised is infallible. This stain, perhaps, is less reliable than others in certain conditions, but it will give vital information and make such information immediately available to all who will spare a few minutes daily.

Summary and Conclusion

The vaginal smear has been found to be useful in the diagnosis of many hormonal conditions in the female. It is easily obtained, and may even be made by the patient herself on several days and the series carried or sent to the physician later. These smears mirror the hormonal activity in the normal cycle and reveal aberrations in the abnormal. Menopausal smears are the most easily studied, since the immediate cell changes are evident as soon as estrogenic therapy is begun, and since there are no other complicating hormones to change the picture every few days, such as are found while the ovaries are still functioning.

Several good stains have been developed, opening up a new field in gynecology, but they require much time and knowledge of cytology. This modification is not offered to replace any other stain or method of staining but to make available to the gynecologist a method of staining whereby he, too, can use

the knowledge that has been derived by others in their study of the more complicated stains. The procedure is so simple as to be available to all, yet yields enough detail to serve the most exacting, while obviating the time lag of all the other techniques.

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CYSTIC LESIONS OF BONE WITH PARTICULAR REFERENCE TO ENDOCRINE DYSFUNCTION

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Although there is a known inter-relationship between the various members of the endocrine system, the parathyroid glands probably have the most direct effect on bone metabolism.

Isoparathyroidism

In the normal or isoparathyroid state, the serum calcium is maintained at 10 mg. per 100 cc. plus or minus one milligram. Approximately 50 per cent of this in the ionized form. It requires a daily intake of 50 mg. or more of calcium to cause excretion from the body, which may take place in the urine, feces, breast milk, or placenta. Urinary calcium excretion ceases at or below a serum level of 7.0 mg. per 100 cc. About 99 per cent of the calcium in the body is stored in the bones and teeth, but since it cannot be removed from already formed teeth, the bones become practically the only source of calcium when there is a deficit.

The serum phosphorus, which in reality refers to the "inorganic" or "phosphate" form, has a normal adult level of 3.2 mg. per 100 cc. plus or minus 0.5 mg. This is somewhat higher in growing children. There is an extremely sensitive inverse relationship between the serum calcium and phosphorus, which is influenced by an unknown but definite solubility product, which in turn attempts to maintain a saturation equilibrium in the body fluids. Phosphorus is found in large amounts in the bones and teeth, where the approximate Ca:P ratio is 2 to 1. The body also has organic phosphate compounds, such as nucleo-proteins and phospholipids, which on hydrolysis serve as a source of phosphorus in times of deficiency—namely, negative phosphorus balance.

Bone formation and resorption

In bone formation there is a deposition of a mixture of calcium, phosphate, and carbonate (dahlite series) in an organic matrix, the nature of the latter being unknown. The immediate cause for the calcification appears

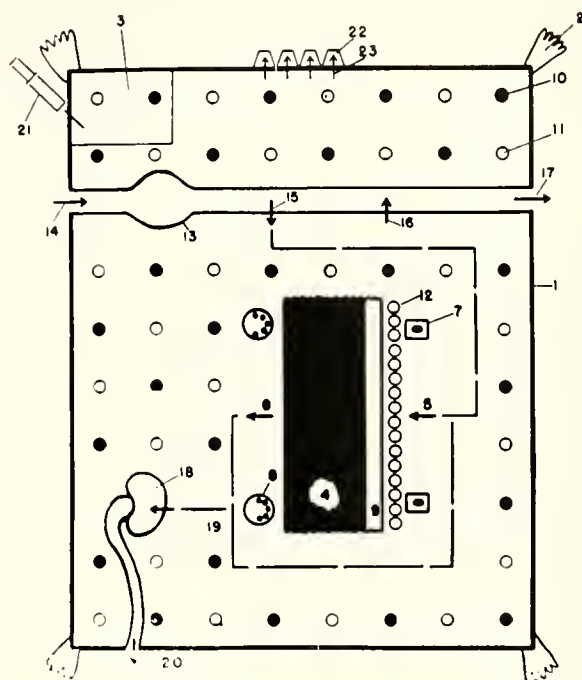


Fig. 1. Isoparathyroidism: Diagrammatic representation of calcium metabolism in isoparathyroid state to be compared with similar diagrams for hyperparathyroidism with bone disease (fig. 2), and hyperparathyroidism without bone disease (fig. 3).

1—Confines of body; 2—rudimentary appendages to make body more realistic; 3—special compartment of body fluids to represent serum; 4—rectangular mass representing calcified bone and having two surfaces, one to the left where bone is being resorbed and one to the right where bone is being formed; 5—arrow indicating rate of calcium deposition into bone-forming surface; 6—arrow indicating rate of bone resorption from bone-resorbing surfaces; 7—osteoblasts laying down uncalcified matrix (9) on bone-forming surfaces; 8—osteoclasts on bone-resorbing surface; 9—uncalcified osteoid tissue laid down by osteoblasts; 10—black dots representing calcium ions in body fluids; 11—white dots representing phosphate ions in body fluids; 12—localized increase of phosphate ions along bone-depositing surfaces resulting from action of phosphatase; 13—gastrointestinal tract; 14—calcium entering the body in the food; 15—calcium being absorbed from the gastrointestinal tract; 16—calcium being re-excreted into the gastrointestinal tract; 17—calcium being lost in the feces; 18—kidneys; 19—calcium passing through the kidneys prior to excretion; 20—calcium being lost in the urine; 21—syringe obtaining serum for analysis; 22—tooth; 23—calcium being deposited into tooth during the tooth's formation. (Courtesy, Albright⁽¹⁾.)

to be a local increase in the phosphate ions which have been previously split off organic phosphate compounds by the action of an enzyme, either alkaline phosphatase, phosphorylase, or both. Both of these are apparently formed by the osteoblasts, which also lay down the osteoid tissue (organic mat-

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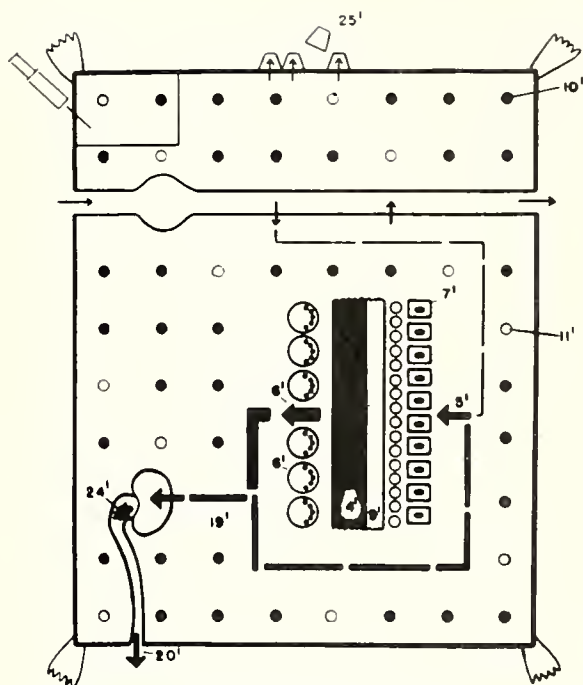


Fig. 2. Hyperparathyroidism with bone disease: Diagrammatic representation of calcium metabolism in hyperparathyroidism with bone disease to be compared with calcium metabolism in the isoparathyroid state (fig. 1).

Note decrease in bone mass (4_1), increase in number of calcium ions in body fluids (10_1), decrease in number of phosphate ions in body fluids (11_1), increased calcium resorption from bone-resorbing surfaces (6_1), increased number of osteoclasts (8_1), increase in bone formation with large number of osteoblasts (7_1), ability of calcium to be deposited in the newly formed osteoid tissue as shown by arrow (5_1) and normal width to osteoid seams (9_1), tendency to kidney-stone formation (24_1), and absence of decalcification in teeth although an individual tooth may fall out because of faulty bone (25_1). (Courtesy, Albright⁽¹⁾.)

rix). The normal adult serum alkaline phosphatase level is 3 to 5 Bodansky units. Higher levels, in the absence of liver disease or obstructive jaundice, indicate increased osteoblastic activity such as takes place in growth, rickets, osteitis fibrosa, osteitis deformans, and the like.

Bone resorption occurs at the same time and alongside of bone formation. This process takes place, with the inorganic material being removed according to the physical-chemical laws which govern the saturation of body fluids, and then the osteoclasts (foreign body giant cells) clean up the organic debris. The two processes, bone formation and bone resorption, maintain a strong

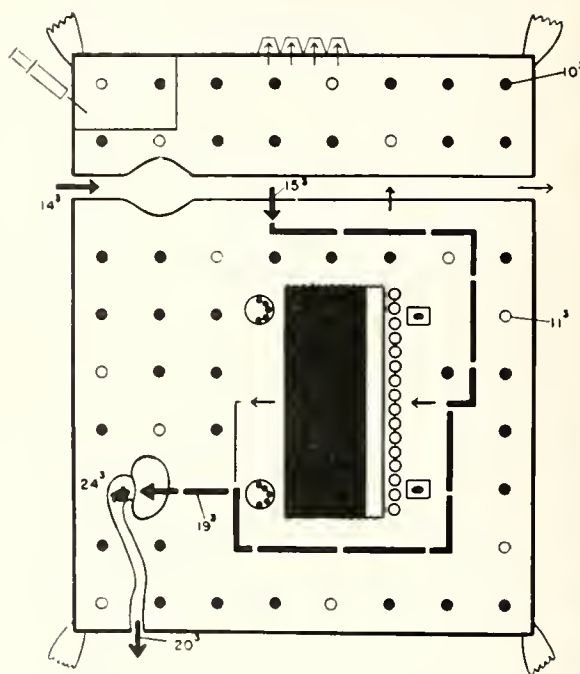


Fig. 3. Hyperparathyroidism without bone disease: Diagrammatic representation of calcium metabolism in hyperparathyroidism without bone disease to be compared with calcium metabolism in normal state (fig. 1) and that in hyperparathyroidism with bone disease (fig. 2).

Note that condition coincides with hyperparathyroidism with bone disease in having an increased number of calcium ions in body fluids (10_3), a decrease in phosphate ions (11_3), an increase of calcium excretion in the urine (20_3), and a kidney stone (24_3); note, however, that there is no diminution in bone mass, no increase in bone destruction or in bone formation, and that increased calcium excretion in the urine is entirely supplied by increased calcium intake and absorption (14_3 and 15_3). (Courtesy, Albright⁽¹⁾.)

but not bulky skeleton (fig. 1).

Influence of the parathyroid hormone

The parathyroid hormone produces four cardinal metabolic changes. Albright and Reifstein⁽¹⁾ believe that the hormone affects the phosphate ion in some way to make it more readily excreted by the kidney tubules. Administration of the parathyroid extract first produces an increased excretion of urinary phosphorus; this is followed by a decrease in serum phosphorus; then almost simultaneously the serum calcium begins to rise; and, finally, the urinary excretion of calcium increases. The removal of the parathyroid glands results in the reverse pro-

cess — namely, hypophosphaturia, hyperphosphatemia, hypocalcemia, and hypocalcemia.

Hyperparathyroidism

In primary hyperparathyroidism, there may or may not be bone disease, which, in turn, may or may not be associated with kidney lesions (figs. 2 and 3).

Osteitis fibrosa generalisata (osteitis fibrosa cystica, or Van Recklinghausen's disease) is the clinical entity of hyperparathyroidism, with a generalized demineralization of the skeleton. This condition can occur at any age from childhood to late adult life. The bones commonly involved are the pelvis, spine, and long bones. Diagnostic signs are the combination of the high serum calcium (12 to 23 mg.), high urine calcium, high serum alkaline phosphatase, and low serum phosphorus (1 to 2 mg.), along with the marked bone changes by roentgen ray, which reveals multiple cysts with or without diffuse rarefaction or bending deformities. Spon-

taneous fracture may occur (see fig. 4).

The pathologic changes in the skeleton were described by Hunter and Turnbull⁽²⁾ as lacunar resorption, apposition, fibrosis of marrow, and formation of osteoclastomas and cysts. According to Copeland⁽³⁾, the microscopic picture varies with the stage of activity; the aggressive or active phase appears like a giant cell tumor while the chronic state suggests the healing reaction about a bone cyst. White⁽⁴⁾ states that osteitis fibrosa, or the fibrous tissue replacement of medullary bone with absorption of bone trabeculae, is not specific, and is found in hyperparathyroidism, localized osteitis fibrosa cystica, Paget's disease, osteomalacia, rickets, and the like (fig. 5). The treatment consists of the exploration of the parathyroid glands, with removal of any showing hyperplastic or adenomatous changes.

Differential Diagnosis

Both cystic lesions of bone and those con-



Fig. 4. Roentgenogram (anterior-posterior and lateral views) showing solitary bone cyst in lower end of tibia with pathologic fractures through the tibia and fibula. Note the cast immobilization. This denotes the complication which occurs in so many of the cystic bone lesions.

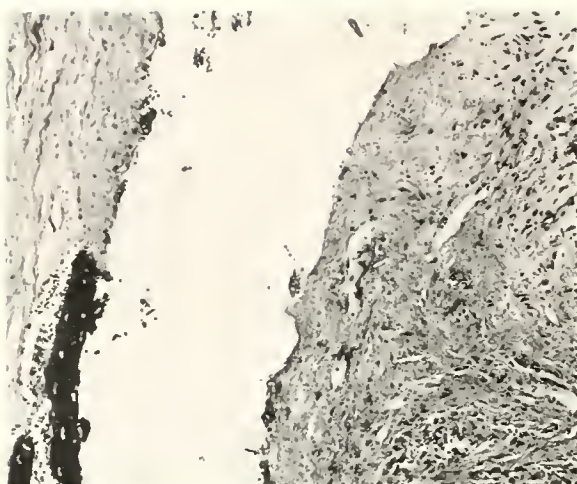


Fig. 5. Photomicrograph (X 105) showing the fibrous tissue and osseous contents of the solitary bone cyst (fig. 4). This denotes the nonspecific connective tissue found in the various types of osteitis fibrosa. (Hematoxylin and eosin.)

ditions which may be mistaken for hyperparathyroidism should be considered in the differential diagnosis.

Osteoporosis, which occurs in disuse, senility, menopause, Cushing's syndrome, scurvy, rickets, osteomalacia, hyperthyroidism, and hypercalciuria. The serum phosphatase for the pelvis and spine. According to Bennett⁽⁵⁾, one of three mechanisms operate—namely, inadequate amounts of available minerals, excessive mobilization of bone salt, and inability of osteoblasts to form organic matrix. The serum calcium and phosphorus levels are usually normal except in growing children, where there may be hypercalcemia and hypercalciuria. The serum phosphatase is normal, despite a markedly diminishing bone density (fig. 6).

Rickets and the adult counterpart, *osteomalacia*, are considered a derangement of mineral metabolism due to vitamin D deficiency, often associated with inadequate calcium or phosphorus, leading to characteristic osseous changes. Despite the generalized decalcification, tumors and cysts are rarely found; and deformities result from bending rather than fractures. Rickets, in addition, presents irregular, wide epiphyseal lines. Both are marked by a low serum phosphorus and high alkaline phosphatase, but the serum calcium is characteristically normal or low, with a reduced urinary calcium excretion (fig. 6).

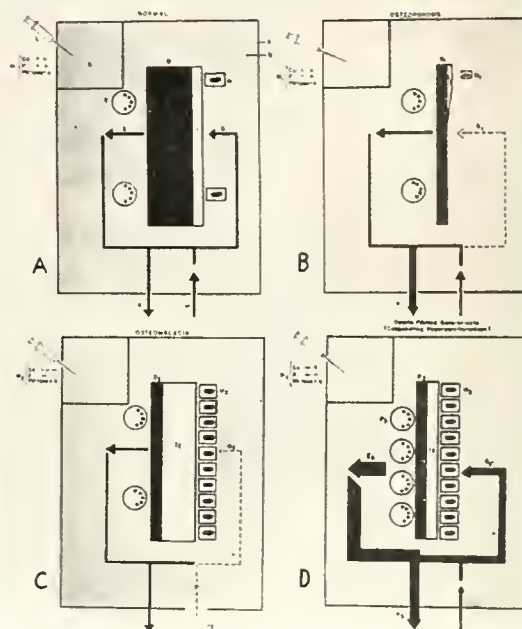


Fig. 6. Normal Bone (A), Osteoporosis (B), Osteomalacia (C), and Hyperparathyroidism with Bone Disease (D).

A—body limits, B—body fluids, C—body serum, a compartment of body fluid easy to tap for analysis, D—bone mass with two surfaces, one where bone is being resorbed and one where it is being laid down, E—arrow indicating by its size rate of Ca and P resorption, F—osteoclast, G—rate of Ca and P deposition, H—osteoblast laying osteoid, I—osteoid, J—Ca and P entering body from gastrointestinal tract, K—Ca and P leaving body by kidney or other exits, L—syringe obtaining serum for analysis, M—blood values (n—normal, plus—high, minus—low).

Diagram A: Note that calcium and phosphorus going into bone equals that coming out of bone; that part of that which comes out goes back in.

Diagram B: Note decrease in bone mass (D_1) due to primary hypoplasia of osteoblasts (H_1) with resulting decreased deposition of osteoid (I_1) and decreased calcium and phosphorus deposition (G_1). Note also increased calcium and phosphorus excretion (K_1) because of less calcium being deposited in the bone; note also normal blood values (M_1).

Diagram C: Note decreased bone mass (D_2) resulting from inability of calcium to be deposited in osteoid tissue (G_2) because of abnormal blood findings (M_2) with resulting wide osteoid seams (I_2) and an increased activity of osteoblasts (H_2). The condition is usually due to faulty calcium absorption (J_2).

Diagram D: Note increased calcium and phosphorus excretion in urine (K_3) leading to increased bone resorption (E_3) with an increased number of osteoclasts (F_3) and resulting in decreased bone mass (D_3), which in turn necessitates increased bone formation with increased number of osteoblasts

Osteogenesis imperfecta congenita (fragilitas ossium) is due to a congenital failure of mesenchymal activity, possibly of endocrine origin, which results in a deficiency of extracellular substance and increased susceptibility of the bones to fracture. The bone shows few osteoblasts and widely separated trabeculae. The blood calcium and phosphorus are normal, but the phosphatase may be somewhat elevated. There is usually a history of fractures, blue sclerae, or otosclerosis.

Osteitis fibrosa disseminata (polyostotic fibrous dysplasia) is a disseminated but not generalized condition marked by a segmental distribution suggesting a neurogenic or developmental origin. McRae⁽⁶⁾ believes that it is related to a dysfunction of the parathyroids, pituitary gland, or hypothalamus. Cutaneous pigmentation and sexual precocity are often present in females (Albright's syndrome). The disease begins in childhood, develops during adolescence, is characterized by episodes of intermission and exacerbation, and prevails in females. The bone lesions are hyperostotic as well as hypostotic. Although the serum calcium and phosphorus are normal, the alkaline phosphatase is elevated.

Osteitis deformans (Paget's disease) occurs usually after 40 years of life, and generally in males. Newman⁽⁷⁾ states that 50 per cent of the cases are marked by pain in the affected area, which is usually the pelvis, skull, spine, or femur. The serum calcium and phosphorus are normal, but the alkaline phosphatase may be increased up to 175 Bodansky units, and is greater per unit of bone than in any other disease. Hypercalciuria and nephrolithiasis may be present at first, when the disease is advancing, but there is eventual overgrowth of involved bones. Sarcomas occur in 7 per cent of the cases.

Osteitis fibrosa localisata (solitary bone cyst), according to Jaffe and Lichtenstein⁽⁸⁾, is a relatively uncommon localized fibrocystic disease affecting mainly the shafts of long tubular bones (humerus 50 per cent), occurring in childhood, and usually attaining large size before a pathologic fracture

points to its presence, (fig. 4). Histologically, it is indistinguishable on biopsy from osteitis fibrosa generalisata and osteitis fibrosa disseminata (fig. 5). There are no changes in the blood calcium, phosphorus, or phosphatase. Treatment by curetting the cyst and filling the cavity with autogenous bone chips usually brings good results.

Multiple myeloma (plasmocytoma) is a rare malignant tumor of bone marrow which usually occurs after the age of 40 and affects the thoracic cage primarily. The serum calcium may be high, with concomitant hypercalciuria and nephrolithiasis. However, the serum phosphorus is normal or high, and the alkaline phosphatase is rarely elevated. The presence of Bence Jones proteinuria, hyperglobulinemia, and plasma cells in the blood or bone marrow render a pathognomonic picture. The treatment is only symptomatic, and death results from kidney failure or "stasis" pneumonia.

Metastatic malignancy must be considered, and here the primary site is most likely to be in the thyroid, breast, bronchus, kidney, or prostate. The lesions in the first four sites are bone-destroying (osteoclastic), while those in the last are bone-forming (osteoblastic). The serum calcium may be high, resulting in a high urinary calcium content and the formation of kidney stones. The serum phosphorus is normal, but the phosphatase level may be elevated.

In Boeck's sarcoid (sarcoidosis) there may be bone changes, high serum phosphatase levels, hypercalcemia, hypercalciuria, and kidney stones. The bone lesions tend to be confined to the hands and feet, where they consist of circumscribed areas of coarse trabeculation and sharply punched-out, small cysts. However, the normal serum phosphorus, the lack of generalized decalcification, and the hyperproteinemia tend to rule out this entity.

Benign giant cell tumor is an epiphyseal lesion occurring in young adults with symptoms averaging about a year in duration. It affects the lower end of the femur, upper end of the tibia, and lower end of the radius. The sequence of events is trauma, pain, tumor, and occasionally pathologic fracture. Copeland⁽³⁾ stated that the x-ray shows early a defect situated asymmetrically in an epiphysis, later in disease extending to a more central position, and surrounded by a bone

(H₃). In spite of the fact that serum phosphorus is low (M₃), serum calcium is sufficiently high (M₃) so that calcium can be deposited in newly formed osteoid (L₃) and calcium deposition is therefore increased (G₃). (Courtesy, Albright⁽¹⁾.)

shell which may be perforated. Histologically, there are large giant cells embedded in a mass of typical small round cells. Therapy consists of curettement followed by cauterization in early cases, with resection in the more advanced. Many are radiosensitive, but about 1 to 2 per cent become malignant following prolonged irradiation.

Echinococcic cysts of bone, according to Howorth⁽⁹⁾, occur in about 1 per cent of the cases involving human subjects, and are more common in the sheep-raising countries. The diagnosis is made on the basis of pain due to leakage of contents or of fractures. The pelvis and spine are mainly affected. Rupture of the contents may be followed by an anaphylactic reaction, and the scolices may be found in the sputum, feces, or urine. Laboratory findings include an eosinophilia of from 20 to 50 per cent, and a positive skin test in 95 per cent of the cases. There are no changes in the blood calcium, phosphorus, or phosphatase. Roentgen studies reveal a polycystic, sharply defined lesion, without reaction or regional decalcification. Treatment consists of excision, with or without exteriorization.

Other diseases which should be considered are tuberculosis, osteomyelitis, lymphomas, lipid dystrophies, renal osteitis, chronic redium poisoning, and other tumors.

Summary

The purpose of this paper has been to present one of the views concerning the relationship of the parathyroid glands to bone metabolism, and to differentiate briefly some of the lesions, cystic or otherwise, which might be confused with those produced by hyperparathyroidism.

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Discussion

Dr. James F. Martin (Winston-Salem): Dr. Lide has asked me to discuss Dr. Pautler's paper from the standpoint of the radiologist. This permits us to obtain a concept of the gross pathology which will aid in the diagnosis.

The radiographic method enables us to determine the number and size of the lesions, the predominant location, and whether it is localized or generalized. This information often gives some indication as to the type of lesion present. It permits an evaluation of the reaction of the bone and periosteum to the disease, the presence of fractures, deformities, and malalignment of the parts. The following remarks deal primarily with cystic lesions which appear as circumscribed areas of decreased density without evidence of calcified bone.

Primary hyperparathyroidism had associated bone changes in approximately 54 per cent of the cases in Albright's series, while renal calculi or parenchymal calcification occurred in 81 per cent. Generalized decalcification of bone was the prominent feature. This process produces a ground glass appearance, and is especially prominent in the skull. Bone cysts and tumors may occur and appear as localized areas of decreased density of varying diameters. Deformities of the spine, pelvis and long-bones, which are usually associated with pain and tenderness, develop. The generalized decalcification may result in the loss of the normal density in the lamina dura of the teeth, and this is often a leading sign in the detection of the disease. It does not, however, appear to be specific, since it has been observed in osteomalacia, rickets, and occasionally in multiple myeloma.

Paget's disease may be localized to one bone or generalized to involve many. The radiographic findings are rather characteristic, and are manifest by zones of bone destruction and excessive irregular bone formation. Early in the disease, the skull may demonstrate an area of osteoporosis and later be replaced by an irregular proliferation producing a "moth-eaten" appearance. The long bones demonstrate thickening of the cortex, which is composed of large, coarse trabeculations, and an increase in the length and width of the bones and bowing, especially in the lower extremities. The changes appear to be more marked at the sites of stress. The vertebrae appear enlarged and demonstrate an actual increase in the height and width. Solitary cystic lesions are quite rare.

The lesions of polyostotic fibrous dysplasia are spotty or segmental in distribution and predominately unilateral. They consist of multiple localized areas of increased density interspersed with areas of decreased density, while the bone elsewhere appears normal. The involved area is frequently localized to the shaft, and appears either homogenous or mottled rather than cystic. Septa formation is uncommon. There is no generalized decalcification. Many of the bones demonstrate an increase in the transverse diameter of the shaft, gross deformity with elongation and thinning of the cortex, and irregular borders in the medullary portion. Pathologic fractures occur and heal without difficulty.

Multiple myeloma may be either localized or disseminated. The primary radiographic feature is bone destruction, which appears first in the medullary portion of the bone and progresses gradually to the peripheral portion. The individual lesions appear as enlarging and well defined areas of rarefaction, without evidence of marginal sclerosis. There is no gross alteration in the contour of the bones unless a pathologic fracture has occurred. A solitary lesion is difficult to differentiate from other diseases which

produce a similar deformity, but the radiographic appearance of the disseminated type is frequently characteristic.

Metastatic malignant tumors may produce solitary or multiple sharply demarcated lesions in the skull, and can closely resemble multiple myeloma or primary hyperparathyroidism. They seldom produce gross over-all alteration in the contour of the long bones, but more commonly are manifest by irregular mottled areas of bone destruction.

The radiographic features of these diseases are often of great help to the clinician in determining the proper diagnosis. Those diseases in which the gross alterations in the contour of the bone are observed usually present little difficulty in recognition, while those in which bone destruction is the prominent feature require additional clinical and laboratory observations for recognition.

EPIDEMIC HEMORRHAGIC FEVER

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LAURINBURG

Epidemic hemorrhagic fever—also known as Manchurian Songo fever—is an acute infectious disease of unknown etiology which has not hitherto been described in American medical literature. Approximately 250 cases, however, have been diagnosed in United Nations troops fighting in Korea since the first case was recognized in June, 1951. Several cases have been discovered among patients from the First Marine Division.

This disease is endemic in the Songo region of Manchuria and in North Korea. Recently cases have been found a few miles south of the thirty-eighth parallel. Japanese troops encountered the disease during their occupation of Manchuria and Korea, but little has been learned from their studies. No cases were reported in American troops during the occupation of South Korea prior to the onset of the Korean War. The first recognized cases among United Nations troops occurred in June, 1951, in soldiers just north of the thirty-eighth parallel.

The incidence of epidemic hemorrhagic fever in enemy troops is unknown, but recent newspaper articles report its presence in Chinese and North Korean troops. If United Nations forces go into Manchuria, this disease may reach epidemic proportions and become of vital importance.

Etiology and Mode of Transmission

Although epidemic hemorrhagic fever clinically resembles rickettsial diseases in some respects, pathologic examination of tissue and postmortem studies have shown that it is not caused by rickettsiae. The responsible organism is believed to be a virus.

The vector is unknown. All of the patients who have had the disease have been exposed to the vectors commonly found in Korea, and many report having noted one or several of these vectors on their bodies. Since the incidence of this disease seems to be decreasing with the advent of cool weather, mosquitoes may well be the vector. Some observers, however, place the blame on ticks.

Observation and studies have led to the conclusion that epidemic hemorrhagic fever is not contagious. The possibility that the disease may be harbored in rats has been considered, but has not been proved.

Clinical Characteristics

It has not been definitely established whether the incubation period is two to three days or 10 to 14 days. The prodromal symptoms of headache, backache, anorexia, nausea, and general malaise may last about two days. On the third day the temperature rises rapidly to 105 or 106 F. The face becomes flushed, the conjunctivae are injected, and chills occur. Headache is severe and usually is felt in both the suboccipital and retrobulbar regions. Dull, aching pain is felt in the abdomen, back, and both flanks. Generalized muscular aching is present. Upper respiratory symptoms are associated with uncontrollable, persistent coughing and vomiting. Bilateral subconjunctival hemorrhages may lead to myopia. Hiccups and eructation, abdominal distention, and diarrhea are present to varying degrees.

The temperature remains elevated, with slight morning remissions, for eight to 10 days, after which it gradually returns to normal. Prostration may be severe, and the sensorium always becomes hazy at some time during the acute phase of the disease.

The bilateral subconjunctival hemorrhages appear on the third or fourth day. On about the fifth day cutaneous hemorrhagic phenomena develop—usually at the site of needle punctures—and petechiae of the buccal mucosa may be observed. Hemoptysis and hematemesis occur in many cases. The urine is always dark and rusty in color. Oliguria and even anuria may exist for varying periods of time.

In patients who recover, gradual improvement begins on about the tenth day, although nausea and vomiting frequently persist and general weakness continues to be troublesome for two to three weeks. Polydipsia, polyuria, and nocturia are noted about the

end of the second week and persist into the fourth week. Varying degrees of weight loss and resolution of the subconjunctival and cutaneous hemorrhages take place from the third to fifth weeks.

In cases terminating fatally, massive pulmonary and gastric hemorrhages may produce shock and coma. One fatality resulted from profound shock due to a ruptured spleen. Deaths usually occur between the third and the ninth day.

About 25 per cent of the patients with epidemic hemorrhagic fever also have malaria (*Plasmodium vivax*), despite the fact that the majority of this group give a history of taking chloroquine weekly. It is felt that in these cases malaria which has been suppressed by chloroquine becomes apparent with the onset of epidemic hemorrhagic fever. Attempts to treat the malaria with chloroquine are usually not successful because of the persistent nausea and vomiting. Because of insufficient evidence regarding the use of intravenous quinine, we have no satisfactory method of treating malaria associated with epidemic hemorrhagic fever at this time. Patients recovering from the hemorrhagic fever do not have clinical evidence of malaria, but may have it in suppressed form, since maintenance doses of chloroquine are resumed upon return to duty.

Accessory Clinical Findings

Blood counts show leukocytosis with a relative lymphocytosis, the white cells often numbering 30,000 or more. The leukocyte count remains elevated during the acute phase of the disease. Slight anemia is present, but platelet counts are normal. Smears for *Plasmodium vivax* are positive in 25 per cent of the cases. Prolongation of the prothrombin time and elevation of the non-protein nitrogen are the only other known abnormalities found on examination of the blood. These values return to normal in two to three weeks. Weil-Felix agglutinations are negative. Serologic tests for syphilis may be weakly positive.

Examination of the urine reveals gross and microscopic hematuria, albuminuria, granular and cellular casts, and minimal pyuria, all persisting from ten to fourteen days. On Mosenthal concentration tests the specific gravity does not rise above 1.010 to 1.015 for three to four weeks after the onset of the disease.

Pathologic Findings

Autopsies have been performed in several cases, but the findings were rather inconclusive. Grossly, hemorrhages may be found in every organ and cavity of the body. The hemorrhagic tendency seems to be most pronounced in the subcapsular surface of the liver, the right atrium of the heart, the zona fasciculata of the adrenal cortex, and the outer medulla and cortical surface of the kidneys. Cerebral hemorrhages are present, and in a majority of the cases there is involvement of the posterior pituitary gland. Varying degrees of cerebral, pulmonary, renal, and retroperitoneal edema have been found in fatal cases, but the fluid retention has been most prominent in patients who were given parenteral fluids during the course of the disease.

Microscopic studies also demonstrate hemorrhages in all the organs—especially the posterior pituitary gland. Lower nephron nephrosis has been found in all cases. Neither bacteria nor rickettsiae have been demonstrated to date.

The hemorrhagic phenomena so prominent in this disease have not been satisfactorily explained. The perivascular infiltration of small round cells and the proliferative changes in the endothelium of arterioles and arterial capillaries which are characteristic of rickettsial diseases are not present in cases of epidemic hemorrhagic fever.

The fact that posterior pituitary hemorrhages have been found microscopically in all cases coming to autopsy suggests that similar, though less extensive, pituitary damage may occur in patients who recover. This temporary interference with the function of the posterior pituitary gland would help to explain the symptoms of polyuria, polydipsia, and nocturia, which suggests the possibility that a mild diabetes insipidus may exist in many cases.

Diagnosis and Prognosis

The most important diagnostic feature of epidemic hemorrhagic fever is the presence of bilateral subconjunctival hemorrhage in 90 per cent or more of the cases. This feature distinguishes it from the rickettsial group of diseases, in which subconjunctival hemorrhages are rare. The urinary findings noted earlier serve as a further aid to diagnosis.

Approximately 70 to 80 per cent of the patients recover completely after an average hospitalization of three to four weeks. These

patients are usually not capable of full duty for another month. Two patients with a past history of nephritis have required prolonged hospitalization because of persistent genitourinary symptoms and abnormal urinary findings. Their present status is unknown.

The mortality associated with epidemic hemorrhagic fever is 20 to 30 per cent.

Treatment

The present treatment consists in giving large daily doses of vitamins K and C parenterally. The therapeutic value of vitamin K is questionable, but its use is recommended until further studies are completed. During the acute phase (especially the first six days) the administration of 250 cc. of convalescent blood is of definite value. No deaths have occurred in patients who were given convalescent blood early in the course of the disease. The blood should be drawn from convalescent patients during the first few days following the disappearance of acute symptoms.

Small doses of Demerol are helpful in alleviating the pain and restlessness so prominent in this disease. The importance of conscientious nursing care and supportive therapy cannot be overemphasized.

Parenteral fluids should *not* be given. When epidemic hemorrhagic fever was first recognized in United Nations troops, intravenous fluids were used extensively in an attempt to combat the persistent nausea, vomiting and diarrhea. Postmortem studies in these cases, however, revealed extensive pulmonary edema and hemorrhage.

Antibiotics have not altered the course of this disease.

Summary

Two hundred and fifty cases of epidemic hemorrhagic fever, an acute infectious disease which is endemic in Manchuria and North Korea, have been recognized among United Nations troops in Korea. The etiology, vector, and mode of transmission are unknown.

Clinically, the acute phase of the disease lasts from eight to 10 days and is characterized by a multiplicity of symptoms. The most important single diagnostic feature is the presence of bilateral subconjunctival hemorrhages. Approximately 25 per cent of the patients with epidemic hemorrhagic fever have malaria (*Plasmodium vivax*), confirmed by laboratory studies.

Although hemorrhage may be found in all

organs at autopsy, the hemorrhagic involvement of the posterior pituitary gland which is found in all fatal cases is believed to be most significant.

The disease is fatal in 20 to 30 per cent of the cases, but the majority of patients make a complete recovery after three to four weeks.

Treatment at present consists in the administration of Vitamins K and C, the use of convalescent blood during the acute phase, and the withholding of parenteral fluids.

CHRONIC THYROIDITIS

A Clinicopathologic Study

JOE M. VAN HOY, M.D.

CHARLOTTE

The existing confusion with regard to the nature and the clinical recognition of a group of thyroid diseases that are generally classified under the heading of "chronic thyroiditis" led to this study, in the hope that the correlation of clinical observations with pathologic findings would lead to a more accurate pre-operative diagnoses. All patients operated on for these conditions at the Charlotte Memorial Hospital since its opening in 1940 have been studied by reviewing the observations recorded in the clinical histories and reappraising all the tissue sections of the cases involved.*

Types of Chronic Thyroiditis

In 1896 Riedel⁽¹⁾ first described a widespread but not symmetrical involvement of the thyroid in a dense scarring process, with adherence to and involvement of surrounding tissues, which he interpreted as being a chronic inflammation. Hashimoto⁽²⁾, in 1912, described struma lymphomatosa, which he regarded as being quite distinct from Riedel's thyroiditis. On the basis of 4 cases, Ewing⁽³⁾, in 1928, concluded that Riedel's thyroiditis was an end stage of Hashimoto's. In a review of all the reported cases of Riedel's thyroiditis and Hashimoto's, Graham⁽⁴⁾ stated that the two diseases are quite distinct and unrelated.

DeQuervain⁽⁵⁾, who in 1906 first described

Read before the Section on Surgery, Medical Society of the State of North Carolina, Pinehurst, May 9, 1951.

*The author is indebted to the other members of the surgical staff of the Charlotte Memorial Hospital for their kindness in letting him examine their charts and providing follow-up notes.

pseudo-tuberculous thyroiditis, presented in 1934 a complete study of nonsuppurative thyroiditis, in which he concluded that Hashimoto's thyroiditis was a distinct disease, unrelated to any inflammatory process.

Thyroiditis can be classified as follows:

1. Suppurative
2. Nonsuppurative
 - Acute— Subacute—Riedel's disease
3. Hashimoto's disease
4. Nonspecific

The concept that more than one of these processes can occur in one gland is beginning to appear in the literature. Merring-ton⁽⁶⁾ has reported a case showing features of both Hashimoto's disease and Riedel's. Our own series shows more than one case in which there is difficulty in deciding which process predominates.

Relationship to Other Factors

The incidence of this group of diseases in relation to total thyroidectomies, age, sex, and other factors may prove significant. Out of 270 thyroidectomies, 36 cases of chronic thyroiditis were found—an incidence of 13.3 per cent. Kisner⁽⁷⁾ and co-authors find a greater incidence in the Gulf states than has been reported in other parts of the country. Since criteria for the diagnoses vary and no reported series is sufficiently large to provide conclusive statistics, we do not think that any conclusions regarding a greater incidence in this area are valid.

A correct preoperative or operating table diagnosis was made in 37 per cent of our cases; this compares favorably with the rate of 28 per cent reported from the Roosevelt Hospital of New York⁽⁸⁾, and 23 per cent at the Lahey Clinic⁽⁹⁾.

With regard to sex and age, cases reported in the literature indicate that Riedel's disease is equally common among males and females, and occurs in a younger age group than does Hashimoto's, which rarely occurs in males.

The relative incidence of the various types of thyroiditis in our series is indicated in table 1.

Table 1
Types of Thyroiditis

Types	No. Cases
Riedel's disease	3
Subacute	6
Hashimoto's	20
Hashimoto's and Riedel's	5
Nonspecific inflammation	2
Total	36

Pathology

The gross pathologic anatomy is often sufficiently distinct to permit diagnosis at the operating table. Subacute thyroiditis is characterized by an asymmetrical, hard, often nodular involvement of one or both lobes, accompanied by adhesions to surrounding tissues—not, however, so dense as to preclude the development of a tissue plane. Histologically, this condition presents an inflammatory infiltration, ranging from acute to chronic, which contains foreign body giant cells. Grossly, Riedel's struma consists of extremely hard, pinkish white tissue, which is densely adherent to and often invades surrounding structures. Although generally asymmetrical, it may involve both lobes uniformly. Islands of normal or nearly normal tissue, and sometimes adenomas may be found in the midst of scar.

Microscopically, there is a dense, relatively acellular replacement of thyroid tissue and invasion of surrounding tissues by scar. Hashimoto's struma presents a symmetrical, firm enlargement without adhesions, yellowish gray in color, and finely lobulated; it resembles the pancreas on section. Occasionally, an incidental adenoma is present. Examination of stained microscopic sections discloses a replacement of the acini, to a variable degree, by fully developed areas of lymphoid tissue with follicles. The remaining acini are small and empty, and at times show Hürthle cell formation. Sections from one specimen show both processes, indicating that the changes in one part of the gland may be quite different from those of another. I think this is a coincidence and not a causal relationship.

Clinical Diagnosis

The pathogenesis of these conditions is not subject to proof in this type of study, but certain inferences which seem valid may be drawn from a correlation of clinical and pathologic findings. De Quervain's thyroiditis (subacute) clinically resembles an infection, with low grade fever, and runs a relatively short course. In half of our cases there is a history of preceding sore throat, tonsillitis, or dental infection. Nervousness and palpitation developed in 4 of the 6 cases, suggesting a mild thyrotoxicosis due to the increased release of thyroxin caused by the breakdown of the follicles by the infection. The highest basal metabolic rate was plus

11, and the lowest plus 4. Needle biopsy may be used to confirm the diagnosis.

The development of Riedel's struma is more insidious, with the symptoms extending in our 3 cases over periods ranging from one month to 14 years. Choking, hoarseness, and gradual enlargement of the gland were complained of in each instance. Basal metabolism determinations varied from plus 10 to minus 1, and were not correlated with the duration of the disease.

One case tends to support the theory that Riedel's disease represents the end stage of an inflammation. A three month history of local tenderness and slowly developing enlargement accompanied by choking was given. The histologic changes were predominantly those of Riedel's disease, with some features of the subacute type.

Hashimoto's struma lymphomatosa, which we do not think is an inflammation at all, is characterized by an insidious enlargement of the gland, which is usually, but not always, symmetrical. There is no tenderness, and in 10 out of 20 cases, preceding thyrotoxicosis is either proved by previous operation (3 cases) or strongly suggested by the history. The basal metabolic rates ranged from minus 17 to plus 29.

First suggested by Williamson and Pearce⁽¹⁰⁾ in 1929, evidence of hyperinvolvement cannot be overlooked. Vaux⁽¹¹⁾, in 1938, had enough cases to classify them into early, moderate, and late—all the late ones marked by quite low basal metabolic rates. A similar correlation can be made in our series—those with the lowest basal metabolic rates have the longest histories and most uniform lymphomatous change. This finding supports the theory that Hashimoto's disease is a form of hyperinvolvement.

Our series includes 2 cases of nonspecific chronic inflammation which are in no way characteristic. One is of interest because it shows an inflammation superimposed on an active hyperplasia, with a basal metabolic rate of plus 37.

The question of the interrelation of Riedel's and Hashimoto's thyroiditis is not a closed issue—the present series includes 4 cases with distinct histologic characteristics of both processes present in the same gland; this does not necessarily lead to the conclusion that one is a transition into the other. It may rather indicate that the inflammatory process is superimposed on the degenerative one.

Treatment

Once the diagnosis is suspected on clinical grounds, the choice of treatment is more readily made. In the case of subacute thyroiditis, local radiation therapy leads to a rapid subsidence of all symptoms. If a mass persists, excision to rule out carcinoma is indicated. In Riedel's thyroiditis the compressive symptoms demand operation for relief, and the hardness to rule out carcinoma. A conservative resection, removing only the isthmus portions, is indicated to decompress the trachea and to avoid vital structures that are densely adherent. A clinical diagnosis of Hashimoto's disease may be followed by conservative treatment, unless compression, a nodule, or cosmetic considerations call for operation. All patients need, or will need, supplemental thyroid extract by mouth.

Conclusions

1. There is still a considerable divergence of opinion regarding so-called thyroiditis. I believe that the subacute type and Riedel's type are definitely inflammatory, and that Hashimoto's type is degenerative or hyperinvoluntary.

2. An awareness of the features of these conditions and careful clinical study should, in my opinion, lead to a correct diagnosis, preoperatively or at operation, in approximately 50 per cent of the cases, and consequently to a choice of therapy that will avoid a certain number of operations and result in a more intelligently planned operation in other cases.

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Discussion

Dr. Paul Kimmelstiel (Charlotte): I first want to congratulate Dr. Van Hoy on his paper. In one respect, of course, I fully agree. His statement that acute thyroiditis is pathogenic and not related to Hashimoto's struma, however, is open to question.

It is true that Hashimoto's struma is now regarded by most authors as a stage of involution. Lymphoid infiltration cannot be taken as evidence of inflammation. The inflammatory process which takes place in subacute thyroiditis, chronic thyroiditis, or Riedel's disease, however, must not necessarily be due to the extrinsic factor of infection—in other words, to a pathogenically different process.

An inflammation, acute or chronic, as it may be related to certain clinical symptoms, may well be a sterile process, due not to an extrinsic agent, but to an irritation, a change.

The idea is by no means new. A similar condition exists in the breast. In addition to a pathologic involution called chronic mastopathy, or chronic mastitis, there is a chemical mastitis, which is a sterile inflammation carrying all the evidence of infiltration, but due to a pathologic involution, an irritation caused by a chemical substance which originates in the breast, not without.

I can conceive that subacute chronic thyroiditis accompanied by fever, following a transient clinical course or perhaps changing into a chronic Riedel struma, may be due to an altered state of the colloid in the pathologic process of involution.

The fact is that an etiologic agent has never been found in subacute thyroiditis. Every possible attempt, with the exception of virus studies, has been made. Until we find such an agent, I think it is advisable to look upon Riedel's struma and subacute thyroiditis as a peculiar form of pathologic involution. Involution may take various forms, and it may also possibly lead to subacute thyroiditis and eventually to chronic thyroiditis.

Dr. William W. Shingleton (Durham): At Duke Hospital we subscribe to the idea that these diseases are probably an involutionary process. Our experience during the 10 year period from 1940 to 1950 parallels that of other clinics. We had 977 operations on the thyroid gland. We had 40 patients with subacute thyroiditis, only 3 of whom were operated upon. One of the operations was for attempted drainage, one was for biopsy, and the third was the result of a mistaken diagnosis. We do not think it is necessary to operate upon the thyroid in subacute thyroiditis.

We had 12 cases of Hashimoto's struma and 8 cases of Riedel's. During the same period we had 36 cases of carcinoma.

From 1940 to 1945 we had only 5 cases of carcinoma of the thyroid. Since then we have had 31 cases.

Of the 60 cases of chronic thyroiditis, 40 were classified as acute, 12 as Hashimoto's disease, and 8 as Riedel's. Only 3 of the patients with subacute thyroiditis were operated upon. In 32 cases, antibiotics were used. It was our opinion that this treatment was not particularly successful.

Propylthiouracil was used twice without any dramatic change. Roentgen therapy was used in 14 cases. In 2 cases there was a recurrence, and in 1 case no change.

It is important to differentiate between subacute thyroiditis and other varieties, since surgery is not indicated in the former. Hashimoto's and Riedel's strumas are often confused with carcinoma. Some strumas have to be removed for cosmetic reasons.

The possibility of differentiating between subacute thyroiditis and the other two types is demonstrated by the fact that in 39 of our 40 cases we

made what we assume was the correct diagnosis, and the patients recovered from the disease without an operation.

Dr. Richard Taliaferro (Greensboro): After the discussions by Dr. Kimmelstiel and Dr. Shingleton, some confusion as to the picture of Hashimoto's disease and Riedel's struma may exist. I wonder if when Riedel's description of thyroiditis first appeared in the early twenties, some of the microscopic pictures were omitted. When Hashimoto gave his description, the question arose as to whether the two diseases were the same, or whether one was at least a stage of the other. My own feeling, though I cannot speak from experience, is that Hashimoto's disease and Riedel's struma are part of the same process. It is believed that Hashimoto's disease is a degenerative process, and exploration discloses evidence that both diseases are present. That makes me wonder if the two conditions overlap.

In specimens which had been diagnosed as Riedel's struma, we found that a degenerating adenoma might possibly be the cause of the chemical-like process mentioned by Dr. Kimmelstiel.

Dr. Roy McKnight (Charlotte): I was interested in Dr. Van Hoy's statistics. In approximately 2000 thyroidectomies during the last 15 years, I operated on 15 patients with thyroiditis. I recognized half as many cases of acute or subacute thyroiditis which did not require operation.

I believe that the statistics he gave were based on the studies of one pathologist. If a physician were to take his slides to another, or to six others, he might find that the figures were completely reversed.

Dr. Allen Grant, formerly pathologist at the Crile Clinic in Cleveland and now in Pittsburgh, has concluded from his vast experience that Riedel's thyroiditis is a disease in itself, and that it has nothing to do with any previous hyperplasia. He recognized about 20 cases without finding evidence of hyperthyroidism in any. On the whole, the duration had been short. He could not believe that Riedel's thyroiditis, diagnosed by a competent pathologist, was the end result of previous hyperthyroidism or a previous infection.

Hashimoto's disease is a type of involution. In most of the cases I have seen, there was a history of previous hyperthyroidism; in Riedel's disease, you cannot obtain such a history.

Dr. Van Hoy (closing): Dr. Taliaferro and I differ in our interpretation of Hashimoto's disease and Riedel's struma. My interpretation is that there are two separate, distinct processes, one superimposed upon the other. I see no reason why an inflammation cannot be superimposed upon a degenerative process. An infection can be superimposed upon a calcifically ordered disease. Other examples in pathology can be found.

Dr. Shingleton emphasized an important point when he mentioned the choice of therapy after the probable diagnosis has been made. The subacute inflammatory process does not require surgery. The other types of thyroiditis do require it because of the symptoms.

The personal attitudes of the patient are important in the treatment of any disease in which the patient's cooperation must be elicited. The more chronic the illness, the greater importance these personal factors assume. Osler summed up the situation in tuberculosis when he said, "It is just as important to know what is in a man's head as what is in his chest if you want to predict the outcome of his pulmonary tuberculosis."—Jerome Hartz, M.D., Pub. Health Reports, October 6, 1950.

THUMBENAIL SKETCHES OF EMINENT PHYSICIANS

HANS MARTIN KALBERLAHN
(1722—1759)

DOROTHY LONG*
LEXINGTON, KENTUCKY

The records of the Moravians in North Carolina contain many details of the life of one of the early physicians of the state, Dr. Hans Martin Kalberlahn, who came with a group of unmarried men to settle in Bethabara in 1753. In one list of the group he was described as "Hans Martin Kalberlahn, born in Norway, aged 31, their surgeon."⁽¹⁾ He was born in Drontheim, Norway, where he received his preliminary education in a Lutheran school, and then served an apprenticeship under an older physician. This was followed by a year of travel, spent largely in visiting hospitals and other physicians in Europe, and in doing enough medical work to pay the expenses of his travels⁽²⁾. In Copenhagen, Dr. Kalberlahn became friendly with a group of Moravians, was accepted into their church, and later came to America.

The first volume of the *Records of the Moravians in North Carolina*, edited by Dr. Adelaide Fries⁽¹⁾, contains an account of the journey from Pennsylvania to North Carolina made by the group of settlers of which Dr. Kalberlahn was a member, and of the early years of the settlement. The men arrived on November 17, 1753, and lived at first in an abandoned cabin on the Moravian land. Almost at once Dr. Kalberlahn began to serve others outside the Moravian group, as only ten days after their arrival it is recorded that "Dr. Kalberlahn bled Mr. Alten's friend and gave him some medicine, for which he promised to pay two bushels of corn." On December 22, "An Irishman arrived, seeking counsel of Dr. Kalberlahn. He begged to be allowed to stay several days in his care, and we could not refuse, as the poor man was in great pain, although it is not convenient for us with our small resources."

Thereafter many entries speak of patients coming for distances of as much as a hundred miles for treatment, and staying for days or weeks of care, or of the doctor's going on journeys of equal length to treat them.

Expressions of gratitude for his care were often mentioned, including the instance of one patient whose parents were so happy at his recovery that they offered Dr. Kalberlahn a cow and a calf in payment. Another patient, whose case was recorded in some detail, was Georg Müller, who "was struck on the head with an axe by someone who wanted to kill him. A surgeon treated the wound, and it seemed to heal, but it has opened again, his mind is weak, and he suffers much pain," wrote the diarist on February 12, 1755. The next day, "Dr. Kalberlahn operated on the injured man, and removed a splinter of bone from his skull; has also agreed to keep him under his care for several days here." Sent home on March 8, Müller had to be brought back to the doctor a few days later, and he stayed until March 24. In June he returned to the Moravian settlement, bringing two bushels of salt, and "We rejoiced to find him much improved, though his speech is somewhat affected."

Few specific drugs are mentioned in the records, but an entry of February 5, 1754, reading, "We burned tar, which Dr. Kalberlahn will need in medicine," is typical of several others. He also raised medicinal herbs in a small garden, of which the plan has been preserved, and it is recorded that in 1757, "Dr. Kalberlahn arranged a laboratory."

In 1758 Dr. Kalberlahn returned to Bethlehem, Pennsylvania, for a visit and while there met and married Anna Catherina Antes, with whom he returned to Bethabara in May, 1759. Shortly afterwards an epidemic of typhus fever struck the Moravian settlement, and in July Dr. Kalberlahn himself died with the disease. The story of his marriage and of his death is told more fully in the manuscript diary of Anna Catherina, which is filed in the Salem Moravian archives, and which formed the basis for the book, *The Road to Salem*⁽³⁾. Both the diary and the records agree that in the six years of his practice in North Carolina, Dr. Kalberlahn had acquired a well deserved reputation for skill and devotion in the practice of his profession, and that his early death was a great loss, not only to the Moravians, but to all the residents in that section of the state.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

FEBRUARY, 1952

THE JOURNAL OF THE STUDENT AMERICAN MEDICAL ASSOCIATION

A newly born infant appeals to most peo-
ple of all ages. Even when the infant is
literary rather than flesh and blood it has
an attraction for readers. A newly born
literary infant that should appeal particu-
larly to doctors is the *Journal of the Student
American Medical Association*. One year af-
ter the formation of this Association, Volume
1, Number 1—for January, 1952—of its
official journal came off the press. Walter
H. Kemp is managing editor; Russell F.
Staudacher, executive editor; Philip F. Cor-
so, student editor, and Thomas R. Gardiner,
advertising director.

The regular subscription price of the Jour-
nal is \$3.50, but it is sent without charge

to American medical students and interns.
It is to be published nine times a year, Octo-
ber through June.

The format of the first issue is attractive
and the subject matter interesting. The lead-
ing article, on surgery and bronchiectasis,
is by Dr. Robert M. Janes, professor of sur-
gery at the University of Toronto. Two arti-
cles by students follow: an evaluation of
BCG by Herbert A. Saltzman, of Jefferson
Medical College, and an article on the treat-
ment of acute glomerular nephritis by Ray-
mond W. Browning of Tulane. Another
excellent contribution is a sketch of Hip-
pocrates by Dr. Lewis J. Moorman, editor
of the *Oklahoma State Medical Journal*.

One feature is a news letter from Wash-
ington, dealing with current federal legisla-
tion concerning medical education and the
medical profession generally.

The purpose of the *Student Journal* is
stated in its first editorial: "A monthly pub-
lication designed to provide factual informa-
tion and enlightenment on the scientific and
socio-economic sides of medicine . . . an
educational medium independent of partisan
politics and organizational domination. It
has been developed to fill a needed place in
the public relationship of tomorrow's doctors
of medicine."

This journal, on behalf of the doctors of
North Carolina, extends congratulations and
best wishes to the Student American Medi-
cal Association and its lusty infant journal.

* * *

YOUNG GERMAN DOCTORS GET LESSON IN DEMOCRACY

One of the most dynamic individuals in
America is Dr. Hilton S. Read, an Atlantic
City internist. An editorial in the October,
1950, issue of this journal told how he con-
ceived and carried out the innovation in med-
ical education known as the Visiting Chief
program in the Atlantic City Hospital⁽¹⁾.

Last April, while Dr. Read was visiting
medical schools in Germany as a consultant
to the United States High Commissioner for
Germany, he conceived and organized on
an international scale an exchange program
which is calculated to have a far reaching
and lasting effect in promoting good will
between this country and Germany. After
consulting officials in German hospitals and

1. North Carolina M.J., 11:584-585 (Oct.) 1950.

medical schools and in our State Department, all of whom were enthusiastic about the plan, he enlisted the support of enough individuals to form a private agency to carry it out. Twenty-eight young German physicians came for 16-month internships in New Jersey hospitals. Each one of them has been approved by the dean of his medical school and has been guaranteed a position on the hospital teaching staff of his school upon his return to Germany.

Dr. Read has seen to it that these young men, in addition to getting first rate training at the various hospitals to which they are assigned, are also given an opportunity to learn something of the real meaning of democracy. The young doctors were given a week-end in Philadelphia in November, when they enjoyed a football game, a concert by the Philadelphia Orchestra, and a visit to the University of Pennsylvania Hospital.

The greatest lesson in democracy they have had yet was arranged by Dr. Read and his wife during the last week-end in January. The entire group of 28 young German doctors were guests of the Dennis Hotel. As part of the program they were all taken by citizens of Atlantic City to their homes for dinner, after a conference at the hospital. Instead of a scientific session they listened to a "Forum on the Dynamics of Democracy," in which distinguished speakers discussed such subjects as civil rights in American law, collective bargaining, and industrial self-government.

One of the speakers was Dr. Howard A. Rusk, who will long be remembered in North Carolina medical circles for his brilliant address at the State meeting last May. The Forum made such an impression on Dr. Rusk that he used his column in the *New York Times* for Sunday, January 27, to tell about it. He was too modest to say that he participated in it; but Mrs. Hilton Read, in a delightful account of the Forum written for some of her friends, said: "The last speaker of our first session was Dr. Howard A. Rusk. He ended our afternoon session on one of the highest notes anybody could ever hit. He spoke on 'Medicine's Responsibility in a Democracy.' At the end of his talk someone whispered to me, 'That doctor should have been a minister.' I believe that will give you some idea of what sort of talk Dr. Rusk

gave this group." Those who heard Dr. Rusk last May know exactly what Mrs. Read meant.

Time alone will tell how far reaching will be the effects of this lesson in democracy, which must have made an indelible impression upon the young German doctors who participated in it. Hilton Read has accomplished much in his career; but it is doubtful if he will ever have a greater vision or one that will mean more than this notable contribution to a good neighbor policy.

* * *

AMERICAN MEDICAL ASSOCIATION PUBLICATIONS AVAILABLE TO MEMBERS

Not long ago a specialist wrote a letter to a medical journal complaining that the postman in his office building was getting round-shouldered bringing in copies of the *Journal of the American Medical Association* for the numerous specialists with offices in the building, and that the janitor was also suffering from the fatigue of having to carry them out again, unopened. The writer of this letter, and other specialists who are too busy in their own special fields to have time for keeping up with the broader aspects of medicine may be glad to know that members of the A.M.A. may have the privilege of substitution for the *Journal of the American Medical Association* any one of the specialty journals published by the Association. These journals are listed below:

A.M.A. Archives of Internal Medicine

A.M.A. American Journal of Diseases of Children

A.M.A. Archives of Dermatology and Syphilology

A.M.A. Archives of Neurology and Psychiatry

A.M.A. Archives of Pathology

A.M.A. Archives of Surgery

A.M.A. Archives of Otolaryngology

A.M.A. Archives of Ophthalmology

A.M.A. Archives of Industrial Hygiene and Occupational Medicine.

PROCTALGIA FUGAX

A condition which occurs often enough to deserve more consideration than it has been given is that of fleeting severe rectal pain, which was described in 1936 by Dr. Thaysen⁽¹⁾ of Copenhagen, and named by him "Proctalgia Fugax." It has also been called "Spasmodic High Rectal Pain" and "Rectal Crises." Although Thaysen's paper stimulated numerous other physicians to report cases of their own, it is not mentioned in the latest editions of the standard works on internal medicine, with one exception. Beckman's *Treatment in General Practice* (Saunders) gives a clear-cut description of it and states that it is frequently encountered.

The characteristic features of an attack are its sudden onset, beginning with a sensation of pressure high in the rectum and soon becoming agonizing in its intensity; its comparatively short duration, usually from five to 15 minutes, occasionally longer; the absence of diarrhea or other disturbances of intestinal function; the absence of any demonstrable pathologic condition between attacks. During the height of the attack, the patient may become pale, sweat, and even lose consciousness for a short time.

Bolen⁽²⁾ was able to examine one patient during an attack. He found the rectal mucosa hyperemic and the vessels prominent. When the rectosigmoid angle was passed, a considerable amount of gas was passed, with immediate relief of the pain. The mucosa above this point was normal. Examination a week later showed a normal rectum. This suggests that the condition may be due to a temporary spasm of the muscular coat of the rectum, somewhat analagous to a cardio-spasm or pylorospasm.

By way of therapy, the inhalation of amyl nitrite has been highly recommended. A nitroglycerin tablet, 0.3 to 0.6 mg. (1/200-1/100 grain), has been found to act almost as quickly.

It is important to learn to recognize this condition, since it is really alarming to a patient until he can be assured of its comparatively harmless nature.

References

1. Thaysen, T. E. H.: Proctalgia Fugax; Little Known Form of Pain in the Rectum, *Lancet*, 2:243-246 (Aug. 3) 1935.
2. Bolen, H. L.: Spasmodic Rectal Pain; Review of Literature and Reports of Case, *New England J. Med.* 228:3561-3566 (May 6) 1943.

* * *

THE GOOD OLD DAYS

One of the less admirable characteristics of age is that of harking back to the good old days, and believing that the young people of today are steadily going to the dogs. Some months ago a prominent minister, speaking to a large audience, deplored the depravity of the younger generation, and intimated that it was due partly to the softness of their upbringing as compared to the Spartan existence of his own youth. He boasted that as a boy he had to dress in a frigid room, break the ice in the horse trough to wash his face, and then make fires all over the house for older members of the family. He spoke sneeringly of the oil furnaces controlled by thermostats which enable the present generation to dress in comfort; of the hot water available at a turn of the wrist; and of numerous other labor-saving and comfort-giving devices used nowadays.

It is unfortunate for the cause of true religion that so many people forget that Christ was criticised for "both eating and drinking," and that nowhere in his teaching are we told that it is immoral to be as comfortable as circumstances will permit, or that figurative hair shirts are a mark of piety. Washing one's face in ice water after dressing in the atmosphere of a refrigerator guarantees neither higher morals nor better physique.

Certainly the people of our country are far healthier today than in the days when morning ablutions in ice water were customary. The statistics of the two World Wars do not suggest that our young men are becoming physical weaklings. It may be recalled that in World War II the average inductee was nearly an inch taller and weighed nearly 10 pounds more than in World War I. In Korea our boys are proving, just as they did in both World Wars, that they can take all manner of hardships if necessary.

Those who think that the world is steadily going to the dogs will be interested in the following poem, translated from a Greek comedy written some 24 centuries ago:

Come listen to the good old days
When children, strange to tell,
Were seen, not heard; lived simple lives—
In short, were brought up well.⁽¹⁾

1. Hamilton, E.: *The Greek Way*. New York, W. W. Norton, 1930.

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CORRESPONDENCE

EASTER SEAL CAMPAIGN

To the Editor:

Once again the North Carolina League for Crippled Children is making its plans for the annual Easter Seal Campaign March 13-April 13, 1952. We would like to enlist your help to tell your readers of the work Easter Seals are doing in North Carolina.

It is estimated that approximately 100,000 North Carolina children have some handicapping condition. The North Carolina League for Crippled Children is vitally interested in these children.

The bottleneck in North Carolina seems to be the lack of trained personnel. For the past few summers, the League for Crippled Children in cooperation with the State Board of Public Instruction has offered teacher-training courses. Last summer 78 teachers received additional training in special education for the handicapped children. One hundred and two handicapped children attended workshops where they received special help to enable them to become better adjusted in their regular school work. One medical scholarship was given for advanced training in cerebral palsy, one vocational rehabilitation counselor received special training in cerebral palsy, and five scholarships were given for teacher training. Easter Seal proceeds support a broad program for the handicapped in direct services: diagnosis, treatment, hospitalization, appliances, transportation, and the therapies. Recreation for the children and parent education are likewise included.

It is our hope that the results of the 1952 Easter Seal Campaign will be gratifying, so that we may expand our services to these children. Ninety-one and seven-tenths per cent of all funds raised are put to work in North Carolina. Through your cooperation, more crippled and handicapped children will soon be building happy, useful lives.

The North Carolina League for Crippled Children will be most grateful to you for your cooperation and interest and whatever help you can render us in our work for the crippled children of North Carolina.

Cordially yours,

ALBIN PIKUTIS, *Exec. Director*
North Carolina League for
Crippled Children, Inc.

BULLETIN BOARD

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Dr. George T. Harrell, Jr., professor and director of the Department of Internal Medicine, and Dr. Parker R. Beamer, professor and director of the Department of Microbiology and Immunology and associate professor of pathology, presented papers before the New York Academy of Sciences in New York, January 17 and 19, respectively. Dr. Harrell's paper was entitled "Treatment of Rocky Mountain Spotted Fever with Antibiotics," and Dr. Beamer's, "Treatment of Leptospirosis with Antibiotics."

* * *

At recent meetings in Atlanta, several members of the faculty participated in scientific programs. "The Protective Role of Pyridoxine Against the Toxic Effects of p³²" by Drs. Camillo Artom, W. E. Cornatzer, and George T. Harrell, Jr., of the Departments of Biochemistry and Internal Medicine, was presented before the Southeastern Section of the Society of Experimental Biology and Medicine on January 17. At the business session of that group, Dr. Artom was re-elected counselor.

At the annual meeting of the Southern Society for Clinical Research on January 19, the following papers were presented by members of the faculty: "The Cell Membrane Defect in Acute Rheumatic Fever," Dr. Jerry K. Aikawa; "Influence of pH Upon the Blood Flow and Peripheral Resistance in the Hind Leg of the Dog," Nancy C. Kester (by invitation), Dr. A. W. Richardson (by invitation), and Dr. Harold D. Green; "Body Potassium Loss During Therapy with ACTH and Cortisone," Dr. Aikawa, and (by invitation) Dr. J. H. Felts; "Exchangeable Potassium Content of Normal Women," Dr. Aikawa, Dr. G. T. Harrell, and (by invitation) Dr. B. Eisenberg; "Correlation Between the Vasodilation Produced by Thoracic or Lumbar Sympathectomy and the Vasodilation Predicted from the Effects of Blocking Drugs in Patients with Peripheral Vascular Disease," Dr. Green; and "Disappearance of Radioactive Tagged Albumin from the Serum and Excretion of I¹³¹ in the Urine of Patients with Cirrhosis," Dr. Malcolm P. Tyor (by invitation), Dr. Aikawa, and Dr. David Cayer.

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Dean Coy C. Carpenter has recently announced faculty changes approved by the Board of Trustees of Wake Forest College:

Dr. Paul Haun, at present chief of Hospital Construction Unit of the Psychiatry and Neurology Division of the Veterans Administration, has been appointed assistant professor of psychiatry and clinical director of Graylyn. Dr. Haun received the A.B. degree from Columbia College, New York, and the degree of Doctor of Medicine from the College of Physicians and Surgeons of Columbia University. His hospital training includes intern and residency appointments at the Colorado General Hospital, New York Neurological Institute, Boston Psychopathic Hospital, and Worcester State Hospital. Dr. Haun is expected to assume his duties about February 15, 1952.

Other additions to the faculty are Dr. Vernard F. Bond, assistant in clinical internal medicine; Dr. Charles M. Howell, assistant in clinical dermatology; Dr. Louis de S. Shaffner, instructor in surgery; and Dr. S. Clay Williams, Jr., assistant in clinical internal medicine.

Dr. C. Nash Herndon, formerly director of the Outpatient Department of the North Carolina Baptist Hospital, assumed his full-time duties in the

Department of Preventive Medicine on January 1. He serves as associate professor of medical genetics, assistant professor of preventive medicine, and instructor in internal medicine. He was recently elected treasurer of the American Society of Human Genetics.

Resuming her duties on the faculty, Dr. Lucile W. Hutaff has been appointed assistant professor of preventive medicine and assistant professor of internal medicine.

Dean Carpenter has also announced the promotion of three faculty members to full professors, Dr. Fred K. Garvey, professor of urology; Dr. James A. Harrill, professor of otolaryngology; and Dr. Robert L. McMillan, professor of clinical internal medicine.

Dr. Garvey joined the faculty of the medical school in 1941 as assistant professor of surgery in charge of urology. He received the degree of Doctor of Medicine from the University of Cincinnati and, prior to coming to Winston-Salem as chief of the urology service of the North Carolina Baptist Hospital, Dr. Garvey was on the resident staff of the Brady Urology Clinic in Baltimore, and the Urology Clinic in Philadelphia.

Dr. James A. Harrill, a graduate of the University of Pennsylvania School of Medicine, has been a member of the faculty of the Bowman Gray School of Medicine since 1941, when the school was moved to Winston-Salem, where Dr. Harrill was established in the practice of otolaryngology.

Dr. Robert L. McMillan also joined the faculty of the medical school in 1941. He is a graduate of the Duke University School of Medicine.

Other promotions in the faculty include: Drs. Helen W. Belding, John P. Davis, William H. Flythe, Arthur Freedman, Charles H. Reid, Karl Shepard, Joseph B. Stevens, A. J. Tannenbaum, Charles R. Welfare, John C. Wiggins, and Orpheus E. Wright, to the position of instructor in clinical internal medicine; Dr. George W. James, assistant professor of clinical dermatology; Dr. William L. Kirby, associate professor of clinical dermatology; Dr. Carlton N. Adams, assistant professor of clinical obstetrics and gynecology; Dr. Angus C. Randolph, assistant professor of psychiatry; Dr. James T. Marr, instructor in clinical radiology; Dr. William B. Alsup, instructor in clinical otolaryngology; Dr. H. Frank Forsyth, assistant professor of orthopedics; Dr. George W. Holmes, assistant professor of clinical orthopedics; Dr. James F. Marshall, assistant professor of surgery; Dr. Robert A. Moore, associate professor of orthopedics; Dr. Howard M. Starling, assistant professor of surgery.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. Nathan A. Womack, professor of surgery, was guest speaker at the annual dinner of the San Francisco Surgical Society on January 15; he spoke on "A Concept in the Extension of Surgery in the Treatment of Malignant Disease." On January 17 he was guest speaker at the President's Dinner of the Los Angeles Surgical Society. While in California Dr. Womack attended a two day meeting of the Southern California Chapter of the American College of Surgeons; at a dinner meeting on January 19 he spoke on "The Significance of So-Called Benign Tumors of the Breast"; the following day he was moderator for a panel on "Biliary Tract Disease" and spoke at the morning session on "The Treatment of Acute Cholecystitis."

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Drs. C. Bruce Taylor and John B. Graham, of the Pathology Department, participated in "Heart Day" in Goldsboro on January 29. In the evening, both addressed the Wayne County Medical Society.

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Dr. Charles H. Burnett, professor of medicine, and Drs. John H. Ferguson and Jessica H. Lewis, of the Physiology Department, attended the January meeting of the Southeastern Section of the Society of Experimental Biology and Medicine in Atlanta; Dr. Burnett presented a paper on "Some Observations on Salt and Water Metabolism in Adrenal Insufficiency," and Dr. Ferguson presented a paper entitled "Blood-Clotting Studies in Dogs Internally Radiated with Non-Fatal Doses of Radio-Gold."

* * *

Drs. Ferguson and Lewis attended the Josiah Macy, Jr. Foundation meetings in New York in January; Dr. Ferguson discussed his blood-clotting studies in animals following the administration of radio-gold, and Dr. Lewis was invited to discuss her work on the fibrinolytic enzyme system of the blood.

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Dr. A. T. Miller and Dr. Jack H. Brown, of the Physiology Department, attended a conference on Hormonal Control of Protein Metabolism at Rutgers University the latter part of January.

DUKE PROFESSOR JOINS MARYLAND FACULTY

Dr. Maurice H. Greenhill has resigned his position as associate professor of psychiatry and director of the Division of Psychosomatic Medicine at the Duke University School of Medicine to join the faculty of the University of Maryland as director of its new Psychiatric Institute in Baltimore. In addition to his duties at Duke, Dr. Greenhill has held the rank of visiting associate professor of public health psychiatry at the University of North Carolina School of Public Health, and as visiting associate professor at the University's School of Social Service.

A graduate of the University of Rochester and of the University of Chicago, Dr. Greenhill has held several state and community consultancies during his 11 years in North Carolina. He has been chairman of the Dean's Subcommittee in Psychiatry for the Veterans Administration Residency Training Program in the state, a member of the Medical Care Commission, a member of the Medical Advisory Commission to the State Hospitals Board of Control, and psychiatric consultant for the State Board of Health, the State Board of Public Welfare, and the State Division of Vocational Rehabilitation. He is, in addition, a consultant to the Surgeon-General of the U. S. Army, to the Surgeon-General of the U. S. Public Health Service, and to the Veterans Administration.

He has been president of the North Carolina Neuropsychiatric Association, chairman of the Section on Neurology and Psychiatry of the Medical Society of the State of North Carolina, and secretary-treasurer of the executive committee of the North Carolina Mental Hygiene Society. His book, *Psychotherapeutic Medicine*, is soon to be published by Grune and Stratton.

PIEDMONT PROCTOLOGIC SOCIETY

The annual March meeting of the Piedmont Proctologic Society will be held in Charlotte on March 29. Members desiring to bring guests should communicate with the secretary, Dr. B. Richard Jackson, Raleigh, North Carolina.

GREENSBORO ACADEMY OF MEDICINE

The Greensboro Academy of Medicine will hold a medical symposium at the Jefferson Country Club in Greensboro on Thursday, March 20. The following program has been arranged:

- 10:50 a.m. Greetings from the President—Dr. E. Prefontaine
- 11:00-11:40 a.m. "Management of Burns"—Dr. Robert E. L. Berry, Associate Professor of Surgery, University of Michigan Medical School, Ann Arbor, Michigan
- 11:50-12:30 p.m. "The Selection of Appropriate Fluids for Parenteral Therapy"—Dr. Ben J. Wilson, Assistant Professor of Surgery, Southwestern Medical School, University of Texas, Dallas
- 2:00-2:40 p.m. "Office Treatment of the More Frequently Encountered Skin Conditions"—Dr. John Fidler Daly, Associate Professor of Dermatology, University of Vermont
- 2:50-3:30 p.m. "Respiratory Problems of the Newborn Period"—Dr. Waldo E. Nelson, Professor of Pediatrics, Temple University School of Medicine, Philadelphia
- 3:40-4:20 p.m. "Present Concepts of Thyroid Disease and Treatment"—Dr. Elmer C. Bartels, Consultant in Internal Medicine, Lahey Clinic, Boston
- 4:30-5:10 p.m. "Management of Uterine Bleeding"—Dr. Walter S. Morse, Assistant Professor of Obstetrics and Gynecology, Baylor University School of Medicine, Houston
- 6:15 p.m. Dinner
"Allergy and What to Do About It"—Dr. Oscar Swineford, Jr., Professor of Practice of Medicine, University of Virginia Medical School, Charlottesville, Virginia

NEWS NOTES FROM THE NORTH CAROLINA TUBERCULOSIS ASSOCIATION

A portrait of Dr. Paul A. Yoder, former superintendent and medical director of the Forsyth County Sanatorium, was presented in his memory to the sanatorium at ceremonies held on December 3.

The portrait, painted by Joe King, Winston-Salem artist, was presented by W. G. Dunham on behalf of the Board of Forsyth County Commissioners. The painting will be hung in the lobby of the sanatorium.

In making the presentation, Mr. Dunham, who is also chairman of the Forsyth County Tuberculosis Advisory Board, said: "Dr. Yoder was recognized as one of the outstanding authorities on the prevention, treatment, and care of tuberculosis. His achievement in this field of service to humanity is a lasting contribution to the cause of public health and a benefaction to many yet unborn."

* * *

Dr. Willis Speaker On Dearholt Days Program

Dr. H. Stuart Willis, Superintendent and Medical Director of the North Carolina Sanatorium at McCann, was a guest speaker on the Dearholt Days program held in Wisconsin on November 12-13, 1951.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

The Board of Medical Examiners of the State of North Carolina has announced the following schedule for 1952:

Interviews with applicants for licensure by endorsement of credentials—May 5, at the Carolina Hotel, Pinehurst.

Written examination for licensure—June 16-19, at the Sir Walter Hotel, Raleigh.

Interviews with applicants for licensure by endorsement of credentials—June 17, at the Sir Walter Hotel, Raleigh.

NORTH CAROLINA HEART ASSOCIATION

The North Carolina Heart Association, in broadening its education program to reach more and more people in the state, has set up a statewide speakers bureau. Doctors who have already registered for participation are: Dr. Jerry Aikawa, Dr. Harold D. Green, and Dr. C. Glenn Sawyer, of Winston-Salem; Dr. Charles H. Burnett, Dr. John B. Graham, Dr. Edwin P. Hiatt, and Dr. C. Bruce Taylor, of Chapel Hill; Dr. Elias S. Faison of Charlotte; Dr. Philip Handler, Dr. Jerome S. Harris, Dr. Bernard C. Holland, Dr. W. F. H. M. Mommaerts, Dr. Edward S. Orgain, Dr. Albert H. Powell, Dr. James F. Schieve, Dr. W. C. Sealy, Dr. Eugene A. Stead, Jr., and Dr. James W. Woods, of Durham; Dr. Sidney LeBauer and Dr. O. Norris Smith, of Greensboro; Dr. J. W. R. Norton of Raleigh; Dr. John C. Smith of Rocky Mount, and Dr. Frederick Thompson, Jr., of Fayetteville.

These men have indicated willingness to speak on the following topics: **Research:** general cardiovascular diseases, rheumatic fever, hypertension, biochemistry of muscular contraction illustrative of basic cardiovascular research, experimental atherosclerosis, cerebral vascular disease, and coronary artery disease; **physiology:** the cardiovascular system, blood pressure, and kidneys; **obesity** as a common preventable cause of cardiovascular disease; **surgical treatment** of congenital defects of the heart and great vessels; **emotional disturbances** of the heart; and **public health aspects** of heart disease.

The North Carolina Heart Association welcomes in this program the assistance of others who are interested in cardiovascular diseases.

NORTH CAROLINA ALCOHOLIC REHABILITATION PROGRAM

A full-time recreational director for the Butner Alcoholic Rehabilitation Center has assumed his duties, it was announced recently by S. K. Proctor, executive director of the North Carolina Alcoholic Rehabilitation Program.

Benjamin Dixon, recent graduate of North Carolina State College and recreation specialist, will direct the Butner recreational program. Formerly of Washington, North Carolina, Dixon worked last summer with the Raleigh recreational department before completing his college training at State last month.

The recreational program will have two purposes: to give patients recreation for immediate physical and emotional relaxation and to offer interested patients some plans for diversion and rest at home.

* * *

A new, 36 page brochure describing the State's Alcoholic Rehabilitation Center at Butner is now ready for statewide distribution upon written request. Compiled from past issues of *Inventory*, ARP bi-monthly journal, and current treatment data, the

new booklet portrays Butner as a place of both restorative atmosphere and systematic treatment, and emphasizes the Center's philosophy of voluntary admissions and teamwork treatment.

* * *

The institution for instruction on alcohol and alcoholism in Swedish schools has requested current editions of North Carolina's bi-monthly journal on alcoholism, *Inventory*, it was announced recently by S. K. Proctor, executive director of the North Carolina Alcoholic Rehabilitation Program which publishes the journal.

The Swedish organization plans to review *Inventory* in its official publication, *Tirfing*, which goes to citizens "all over Scandinavia." The purpose is to acquaint the Scandinavian people with North Carolina's efforts at alcoholic rehabilitation and education.

DUKE UNIVERSITY MEDICAL ALUMNI LUNCHEON

The Duke Medical Alumni luncheon during the meeting of the Medical Society of the State of North Carolina will be held Tuesday, May 6, at 1:00 p.m., at the Mid-Pines Club. Those planning to attend should notify the secretary, Dr. Talmage L. Peele, Box 3811, Duke Hospital, Durham, North Carolina.

EDGECOMBE-NASH MEDICAL SOCIETY

The regular monthly meeting of the Edgecombe-Nash Medical Society was held at the New Ricks Hotel on January 9. Visiting speaker was Dr. Paul Simpson of Raleigh, whose subject was "Early Diagnosis of Cancer of the Uterus."

New officers of the Society are: Dr. John E. Wright, president; Dr. John R. Chambliss, first vice president; Dr. Robert J. Walker, Jr., second vice president; Dr. Stuart W. Gibbs, secretary and treasurer; and Dr. S. F. Horne, editor and reporter.

NEWS NOTES

The Bradford Clinic of Charlotte has announced the association of Dr. Charles W. Brown in the practice of obstetrics and gynecology.

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Invitations to attend the formal opening of the New Hospital Building, Cabarrus Memorial Hospital, Concord, on February 22, have been issued by the board of trustees of the hospital.

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Dr. W. Howard Wilson and Dr. W. Lunsford Long, Jr., have announced their association in the practice of internal medicine at Raleigh.

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Dr. R. Beverly Raney has announced the association of Dr. John Glasson in the practice of orthopedic surgery at Durham.

SOUTHEASTERN SURGICAL CONGRESS

The twentieth Graduate Assembly of the Southeastern Surgical Congress will be held at the Biltmore Hotel, Atlanta, Georgia, March 10-13. The meetings will coincide with those of the Atlanta Graduate Medical Assembly, which will also take place at the Biltmore.

SOUTHEASTERN ALLERGY ASSOCIATION

The Southeastern Allergy Association will hold its seventh annual meeting at the Bon Air Hotel, Augusta, Georgia, on March 21 and 22, 1952.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The fifth annual Postgraduate Course in Diseases of the Chest, sponsored by the Council on Postgraduate Medical Education and the Pennsylvania Chapter of the American College of Chest Physicians and the Laennec Society of Philadelphia, will be presented at the Warwick Hotel, Philadelphia, Pennsylvania, March 24-28, 1952.

A program covering the entire field of heart and lung disease is being arranged. Dr. Chevalier L. Jackson, Philadelphia, president of the American College of Chest Physicians, is chairman of the postgraduate course committee.

Physicians interested in attending the postgraduate course are invited to communicate with the Executive Offices, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

* * *

The eighteenth annual meeting of the American College of Chest Physicians will be held at the Congress Hotel, Chicago, Illinois, June 5 through 8, 1952. A scientific program covering all recent developments in the treatment of heart and lung disease is being arranged.

The Board of Examiners of the American College of Chest Physicians announces that the next oral and written examinations for Fellowship will be held in Chicago on June 5, 1952. Candidates for Fellowship in the College who wish to take the examinations should write the Executive Secretary, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

Dr. George C. Crump of Asheville serves as Governor of the College for North Carolina. Officers of the North Carolina Chapter of the College are Dr. James Mathews, Asheville, president; Dr. Verling K. Hart, Charlotte, vice president; and Dr. Leon H. Feldman, Asheville, secretary-treasurer.

AMERICAN HEARING SOCIETY

This country's estimated 15 million children and adults whose hearing is below par will be in the spotlight during the twenty-fourth annual observance of National Hearing Week, May 4-10, under the sponsorship of the American Hearing Society. Thomas L. Tolan, M.D., Milwaukee, Wisconsin, heads the agency.

Affiliated with the Society are 115 local chapters from Maine to California, which will cooperate in the drive for better hearing.

"Hearing is Priceless—Protect It" is the theme for the educational campaign to acquaint the public with existing programs for prevention of deafness, conservation of hearing, and rehabilitation of the hard of hearing. Need for additional chapters and extended services for the acoustically handicapped in all parts of the nation is stressed by the Society.

Membership in the Society is open to anyone interested in hearing. Supporters and members include numerous otologists, social workers, school administrators and teachers, health and rehabilitation officials, speech and hearing therapists, and thousands of hard of hearing persons.

SECOND NATIONAL CANCER CONFERENCE

The second National Cancer Conference will be held at the Netherland Plaza Hotel, Cincinnati, Ohio, March 3-5, under the sponsorship of the American Cancer Society, the National Cancer Institute, and the American Association for Cancer Research. In addition to individual presentations, the program will include panel discussions on a variety of subjects.

AMERICAN BOARD OF CLINICAL CHEMISTS

The American Board of Clinical Chemists, Inc., has issued certificates to 47 of the many applicants who have completed the filing of their papers. These are the first certificates to be issued and they represent applicants principally residing in New York, Pennsylvania, Illinois, and California. To date, the Board has received nearly 400 requests for certification applications, and expects that many additional requests will be filed before July 1, 1952, the date upon which the certification without examination will be discontinued under the present by-laws. Requests for such forms, accompanied by the full name of the individual and the required fee of \$1.00, may be addressed to the secretary, Joseph W. E. Harrison, Sc. D., 1921 Walnut Street, Philadelphia 3, Pennsylvania.

AMERICAN COLLEGE OF RADIOLOGY

Results of a study undertaken at the Johns Hopkins Hospital in Baltimore, covering a four year period and 40,000 persons over 40 years of age, show that mass x-ray surveys to detect stomach cancer in its early stages are not too successful.

This conclusion is reached in a report appearing in the January issue of the *American Journal of Roentgenology and Radium Therapy*, which is published primarily for physicians who specialize in x-ray diagnosis and treatment.

The project was started at the Johns Hopkins Hospital in January, 1948. Photofluoroscopic gastrointestinal examinations were performed on all new dispensary patients 40 years of age or more. A total of 10,000 persons were examined.

The number of persons found to have the disease in its early stages was "relatively small," being approximately 1 per 476 examinations, or 0.2 per cent in the series.

"Furthermore," they wrote, "it has been our experience that only a few of these can be persuaded to submit themselves to surgery prior to the development of symptoms. It appears that the general public must receive further education concerning the gastric cancer problem before photofluorography will be successful."

(BULLETIN BOARD CONTINUED ON PAGE 108)

Classified Advertisements

General surgeon, native of North Carolina, would like location in town of 10,000 or more after July 1st. Four years of fully approved training in 850-bed hospital, with experience in thoracic surgery and oncology. Board eligible. Aged 31, married, 2 children. Interested persons write MS-O-1, P.O. Box 790, Raleigh, North Carolina.

WANTED:

Young physician under thirty-five, military exempt for one year, to become associated with well established physician to do general practice. Ninety per cent of the work in office and hospital. Would prefer someone who is interested in internal medicine. Salary in the beginning and percentage basis later. Reply to 30-2, P. O. Box 790, Raleigh, N. C.

New Antithyroid Compound Found More Effective

A new chemical has been reported to be fully and rapidly effective in hyperthyroidism, including those cases which have not responded to previous antithyroid therapy.

This compound, 1-methyl-2-mercaptoimidazole, differs in structure from the thiouracils. Initial doses of 15 to 30 mg. daily, divided into three doses at eight hour intervals, should be continued only until symptoms are controlled; thereafter, hypothyroidism is avoided by reducing the amount to the maintenance level of 5 to 15 mg. daily in divided doses. Since the possibility of producing agranulocytosis does exist with any antithyroid drug, it is advisable to run routine differential and white-blood-cell counts every week to ten days.

This drug is now marketed in 5-mg. tablets under the name 'Tapazole' (Methimazole, Lilly).

Pauly Named to Head Pharmacy Division

Dr. Rudolph J. Pauly has been appointed director of the pharmacy division of the Sterling-Winthrop Research Institute, it was announced by Dr. Maurice L. Tainter, director of the Institute. Formerly assistant director of pharmacy division, Dr. Pauly replaces Edward D. Davy, who has retired.

Dr. Pauly was professor of pharmaceutical chemistry at the American University of Beirut, in the Lebanese Republic, from 1927 to 1949 and director of its School of Pharmacy and the University hospital pharmacy. He was decorated by the Lebanese government with the Chevalier de L'Ordre du Sedres.

VOLUME 12

of the

North Carolina Medical Journal

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BOOK REVIEWS

Curare and Anti-Curare Agents. By Klaus R. Unna, Conference Chairman, J. A. Aeschlimann, Consulting Editor. 240 pages. Price, \$4.00. New York: The New York Academy of Sciences, 1951.

This authoritative and timely symposium has brought together most of the best known men engaged in research concerning the pharmacologic development and the clinical application of curare and anti-curare drugs. The panel of lecturers is imposing, including such men as Chemist J. D. Dutcher, Pharmacologists A. R. McIntyre, D. F. Marsh, L. W. Jarcho, W. D. M. Paton from England, E. J. deBeer, W. F. Riker, J. O. Hoppe, D. Bovet from Italy; W. C. Wescoe, L. O. Randall, K. R. Unna, and Clinicians H. R. Griffith, A. D. Console, F. F. Foldes, and J. F. Artusio. In addition, many of the papers are discussed and criticized at length by other well known investigators, indicative of attendance by a large number of scientists interested in the transmission of nerve impulses at the neuromuscular junction.

Although a majority of the papers concern experimental pharmacology, extensive data of a quantitative nature in both anesthetized and unanesthetized man are included. The clinical application of these compounds in the fields of anesthesiology and neurology is discussed by men who have been active in the development of these drugs. Most of the material involves the well-known curare derivatives, d-tubocurarine, dimethyl d-tubocurarine, and Intocostin. Much of the newer data concerning the synthetic curare-like compounds, Flaxedil and Mytolon, as well as those causing similar effects by depolarization of the motor end plate such as decamethonium (Syncurine) and Succinylcholine are brought together for the first time. The spinal depressant drugs, mephenesin (Tolserol) and benzimidazole and related compounds are not included. The well known neostigmine (Prostigmin) and other anticholinesterase drugs are considered as decurizing agents. Newer compounds, such as Tension which antagonizes curare without blocking cholinesterase, are also discussed.

This book is a good starting place to acquire an understanding of the pharmacology of these drugs, along with a discussion of their clinical application. It is particularly recommended to anesthetists and neurologists, and to all others who would use these drugs with understanding.

Statistics for Medical Students and Investigators in the Clinical and Biological Sciences. By Frederick J. Moore, M.D., Associate Professor of Experimental Medicine; Frank B. Cramer, B.A., Research Fellow; and Robert G. Knowles, M.S., Research Associate, all of the Department of Experimental Medicine, University of Southern California School of Medicine. 113 pages with 8 appendix tables. Price, \$3.25. Philadelphia: The Blakiston Company, 1951.

This small volume on introductory statistics is probably better suited to the needs of research workers than to those of medical students. An adequate discussion of the concepts of chance, statistical error, and normal frequency distribution is given. Standard methods for derivation of means, standard deviations, and regression and correlation expressions are described. The more commonly used tests

of significance are described and explained, including Student's *t* test, chi square, and the *F* test (probability distribution of the variance ratio).

The reviewer feels that the writers are a bit severe in their criticism of the chi square test, and that it has somewhat wider usefulness than is implied in the text. The writers are to be complimented, however, on their emphasis on interpretation of significant tests. There is an unfortunate tendency in medical writings to apply some test of significance, at times not the test most appropriate to the data, and if a "significant" probability level of 0.05 is reached, to consider the point under investigation definitely proved. This volume points out the fallacy often encountered in uncritical application of statistical tests, and points out that probability levels that may safely be accepted as "significant" should be based on common sense and examination of inherent variables in the special experimental situation under observation.

The authors also discuss some of the problems of non-normal distributions, including biased sampling. There is a brief discussion of graphic methods of analysis and presentation of data, but this will probably prove inadequate for research workers, and the more extensive texts should be consulted. A chapter on design of experiments suffers from brevity, and only states the problem in general terms.

In general, the book is well written. The explanations are quite brief, but are intended to be thus. The reviewer believes that a clear understanding of the presentation would require more mathematical equipment than is possessed by the average medical student, but that the volume provides a quick method of review of basic principles for research workers or others who have had some training in statistics.

Callander's Surgical Anatomy. By Barry J. Anson, Ph.D. (Med. Sc.), and Walter G. Maddock, M.D. Ed. 3. 1,074 pages. Price, \$14.00. Philadelphia and London: W. B. Saunders Company, 1952.

The authors have done an admirable job in revising this popular and authoritative reference work, which was first written by the late Dr. Callander in 1933. Although the original pattern and presentation is retained, many new illustrations have been added, and more detailed anatomy of those regions now readily approached by modern surgeons has been presented. Much of the new material has come from the original work of the authors.

Although anatomic structure is stressed, the surgical considerations and operative approaches have been brought up to date. In general, the descriptions of anatomic relationships, blood and nerve supply, and lymph drainage have been expanded to include even the small but important details of the thoracic and abdominal contents, and of the retroperitoneal, inguinal, and pelvic regions.

Notable additions are those on the cerebral ventricles, the inner ear, the facial nerve, the posterior neck region, the stomach, inguinal and femoral hernias with uses of Cooper's ligament and tantalum mesh, thoraco-abdominal and transverse incisions, the portal system and pancreas, the adrenal glands, pull-through procedures for colonic lesions, and venous systems of the pelvis and legs.

The format has been changed to two columns per page and larger type. For such a convenient reference book, however, it is regrettable that the use of bold face type for paragraph headings and more detailed page headings have not been carried over

from the earlier editions. It is to be hoped that in later revisions, other minor misconceptions of anatomy may be corrected. Two are still perpetuated in the present edition—that of the two distinct fascias of Camper and Scarpa, and that of a single external anal sphincter.

This book continues to fill a real need. It is distinctly practical, and it is highly recommended for advanced students, surgical house officers, and general surgeons.

Standard Nomenclature of Diseases and Operations. Ed. 4. Edited by Richard J. Plunkett, M.D., Editor, and Adaline C. Hayden, R.R.L. 1,034 pages. Price, \$8.00. Philadelphia: The Blakiston Company, 1952.

On January 2, 1952, the American Medical Association made available to hospitals the new Fourth Edition of **Standard Nomenclature of Diseases and Operations**. Revision of this useful book has been under way intensively for the past three years starting with the decision to revise made at the Fifth National Conference on Medical Nomenclature held at the Association Headquarters office in June 1948. Revision of the book was carried out by the editors under the general supervision of an Editorial Advisory Board and in collaboration with twenty-four committees representing each of the individual or specialty sections of the book.

The rapidly expanding scientific knowledge in many fields in recent years has required a considerable number of changes in several sections of the book. These have included a complete revision of the psychobiologic section to bring it into accord

with accepted diagnostic terminology of the American Psychiatric Association, a complete revision of the diseases of the hemic and lymphatic section to accord with newer thought in this field, and a complete revision of the section on tumor etiology. Changes in the nomenclature and coding of tumors comes about as a result of the deliberations of the "Standard" Committee on Oncology with similar committees of the American Cancer Society, the National Research Council, the U. S. National Committee on Health and Vital Statistics, American Society of Clinical Pathologists, Armed Forces Institute of Pathology, U. S. Public Health Service and others, all of whom have adopted the new nomenclature.

Unquestionably, the adoption of "Standard" in the hospitals of this country not now using it can be an effective and needed move toward the unity inherent in calling the same things by the same names.—Editorial Comment, J.A.M.A., November 11, 1951.

Dr. Harry J. Weiner Joins Winthrop-Stearns, Inc.

Dr. Harry J. Weiner has been named associate medical director of Winthrop-Stearns, Inc., according to Dr. E. J. Foley, medical director.

Dr. Weiner received his B.A. degree at Brooklyn College, Brooklyn, New York, where he also taught organic chemistry, and his M.D. degree at Long Island College of Medicine, Brooklyn.

Before joining Winthrop-Stearns, Inc., he was assistant medical examiner with the Pennsylvania Railroad, Altoona, Pennsylvania. He interned at Beth-el Hospital, Brooklyn, and is a resident of that community.

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BULLETIN BOARD

(CONTINUED FROM PAGE 105)

AMERICAN MEDICAL WRITERS' ASSOCIATION

The interesting papers read at the seventh annual meeting of the American Medical Writers' Association, held at Peoria last September, appear in the January issue of the *Mississippi Valley Medical Journal*, (Quincy, Illinois), the Association's official publication.

The Association, which has had over a 100 per cent increase in membership during the past year, is desirous of a greater membership, and further information may be secured from the secretary, Harold Swanberg, M.D., W.C.U. Building, Quincy, Illinois.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

Research and teaching institutions throughout the United States and Canada have just been awarded over a million and three-quarter dollars in March of Dimes funds for further polio studies and professional education, it has been announced by the National Foundation for Infantile Paralysis. Funds will go to 23 medical schools, hospitals and research institutions in this country, and one in Canada. The recent action by the National Foundation brings to approximately 29 million dollars the amount provided since 1938 by the March of Dimes for furthering a search for a polio preventive and for the training of professional personnel. In addition, the organization has spent more than one-hundred-twenty million dollars for patient care during those years.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC.

That happy useful lives are possible for the handicapped is the composite opinion of parents, professional workers, business and industrial leaders, and the handicapped themselves, recorded in the proceedings of the 1950 annual convention of the National Society for Crippled Children and Adults, the Easter Seal Society.

Recently published, the volume entitled *Building Happy Useful Lives* presents the viewpoints of nationally known doctors, physical, occupational and speech therapists, psychologists, employment counselors, educators, and parents, as well as outstanding representatives of both labor and management.

The book is available from the National Society, 11 South La Salle Street, Chicago 3, Illinois.

COLLEGE OF MEDICAL EVANGELISTS SCHOOL OF MEDICINE

The Postgraduate Assembly and Convention, sponsored by the Alumni Association of the College of Medical Evangelists School of Medicine, has been scheduled for March 2-4 at the Biltmore Hotel.

The 1952 convention features such nationally prominent men as U. S. Army's Major General George Armstrong; Lahey Clinic's Drs. Sara Jordan, Martin Tracey, and John Norcross; A.M.A.'s secretary and general manager, Dr. George Lull; Joslin Clinic's Dr. Priscilla White; Cornell Medical School's Dr. Harold Wolff, and Mayo Clinic's Dr. Giles Koelsche, to mention some of the 37 scheduled to lecture and take part in panel discussions.

For further information write Evelyn R. Strachan, Managing Director, 312 North Boyle Avenue, Los Angeles 33, California.

FEDERAL SECURITY AGENCY

Public Health Service

Edward G. McGavran, M.D., M.P.H., dean of the School of Public Health, University of North Carolina, has been appointed chairman of the Board of Editors of the new *Public Health Reports*, according to an announcement made by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, Federal Security Agency. The new *Public Health Reports*, the first issue of which was issued last month (January, 1952) will be an expanded version of the weekly technical journal of the same name which has been published since 1878 by the Public Health Service.

The new monthly *Public Health Reports* will incorporate two other technical publications of the Public Health Service, the *Journal of Venereal Disease Information* and the *Communicable Disease Center Bulletin*, and will also include the functions of the monthly *Tuberculosis Control Issues* of the old *Public Health Reports*. The new journal will contain essentially the same type of material which has been appearing in these journals. It will be concerned with the professional and technical aspects of public health practice, problems of health administration, and research in these fields, with special emphasis on administrative practice, program development, and applied research.

The new *Public Health Reports* will be published from the Office of the Surgeon General under the general direction of George St. J. Perrott, chief, Division of Public Health Methods. The executive editor is Howard Ennes, and the managing editor, Taft S. Feiman.

* * *

Dr. Arthur J. Lesser has been appointed director of the Division of Health Services of the Children's Bureau, Federal Security Agency, Dr. Martha M. Eliot, Bureau chief, announced recently.

Dr. Lesser succeeds Dr. Edwin Daily, who resigned to become Deputy Medical Director of the Health Insurance Plan of Greater New York.

As director of health services, Dr. Lesser will be responsible for the administration of the maternal and child health and crippled children's programs of the Children's Bureau. These programs administer grants to the states totaling close to \$24,000,000 this year.

VETERANS ADMINISTRATION

Dr. J. Gordon Spendlove, chief medical officer of the Veterans Administration Center, Fort Harrison, Montana, has been appointed manager of the Portland, Oregon, VA Hospital effective February 1, 1952, VA announced recently.

From 1942 until November, 1946, Dr. Spendlove served as chief of the surgical service and chief of the eye, ear, nose and throat service at Moore General Hospital, Swannanoa, North Carolina.

The Value of Humour. I am a great believer in Humour. When tactfully utilized it can save a tense situation, disarm an opponent in debate, and above all make life with its present-day worries and responsibilities more bearable. In the words of Sterne, "I live in a constant endeavour to fence against the infirmities of ill-health, and other evils of life, by mirth. I am persuaded that every time a man smiles—but much more when he laughs—it adds something to this fragment of life."—Sichel, A.W.S.: *Some Impressions of an Ophthalmologist*, Brit. M.J. 2:1409 (June 23) 1951.

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SYMPOSIUM ON PREMATURITY

THE PROPHYLACTIC TREATMENT OF PREMATURITY*

BAYARD CARTER, M.D.

R. A. ROSS, M.D.

and

VIOLET H. TURNER, M.D.

DURHAM

The prevention of premature births is an important factor in the problem of reducing neonatal mortality over the coming years. Any review of the rather voluminous literature on prematurity reveals that it accounts for more than 50 per cent of the neonatal deaths. Although there has been a gradual decline in the neonatal death rate over the years, this decrease has been greater in the term-infant group than in the premature group (fig. 1). Better facilities in modern centers for the care of premature infants and such advances in therapeutics as the antibiotics will lead to further reduction. However, a minimum point will soon be reached beyond which it will be difficult further to reduce premature deaths on these bases alone.

General Factors in Prematurity

Dunham⁽¹⁾ has found (fig. 2) that 57 per cent of the deaths in premature infants occur in the first 24 hours following delivery, and that another 33 per cent occur in the remainder of the first postnatal week. In general, factors which are operative in this high early mortality are the initial birth weight of the infant and obstetric complications.

In figure 3, Dunham⁽¹⁾ shows that in the group of neonatal deaths occurring under one month, prematurity alone was assigned as the major cause of death in 49 per cent

of the cases. Other infants in this group may have been premature, but in infants with birth injury and congenital malformation this was only a contributing cause.

Douglas⁽²⁾, in a survey from Great Britain, showed that 86 per cent of the babies weighing $2\frac{1}{2}$ pounds or less died; 69.5 per cent from $2\frac{1}{2}$ to $3\frac{1}{2}$ pounds; 24.6 per cent from $3\frac{1}{2}$ to $4\frac{1}{2}$ pounds; 8.43 per cent from $4\frac{1}{2}$ to $5\frac{1}{2}$ pounds; and 2 per cent from $5\frac{1}{2}$ to $6\frac{1}{2}$ pounds. Brockway, Reilly and Rice⁽³⁾, in a similar analysis, revealed a mortality of 87.5 per cent in those weighing less than 1000 Gm.; 35.5 per cent in the 1000 to 1500 Gm. weight group; 13.5 per cent in the 1500-2000 Gm. group; and 0.3 per cent in the 2000-2500 Gm. group. Both these studies suggest that each week of maturity materially increases the prognosis of the premature child.

As previously mentioned, however, birth weight is not the only responsible factor in premature mortality; obstetric complications in the mother are of great import. Taylor, Phalen, and Dyer⁽⁴⁾ illustrated this point well. The total per cent of fetal loss was more than twice as high in each weight group of infants when the mother's pregnancy was complicated. Tyson⁽⁵⁾, in a 15 year study of prematurity at Philadelphia Lying-In Hospital, felt that the two most important complications were toxemia of pregnancy, which resulted in a mortality rate of 37 per cent in all prematures born of toxic mothers, and placental and cord complications leading to a 63 per cent death rate. (This included all babies, stillborn and live-born.)

In general, the percentage of prematurity reported in the literature varied. Pomerance and Steiner⁽⁶⁾ reported 4.8 per cent (only babies weighing less than 2250 Gm. were included), Douglas⁽²⁾ 7 per cent, Tyson⁽⁵⁾ 9.4 per cent, Taylor and others⁽⁴⁾ 13.3 per cent, Brockway⁽³⁾ and others over 15 per cent. In an analysis of figures from 1946 through

Presented before the Joint Session of the Section on Pediatrics and the Section on Gynecology and Obstetrics, Medical Society of the State of North Carolina, Pinehurst, May 8, 1951.

*From the Department of Obstetrics and Gynecology, Duke Hospital and Duke University School of Medicine, Durham, North Carolina.

Figures in parentheses are net percentage decreases, 1935-48

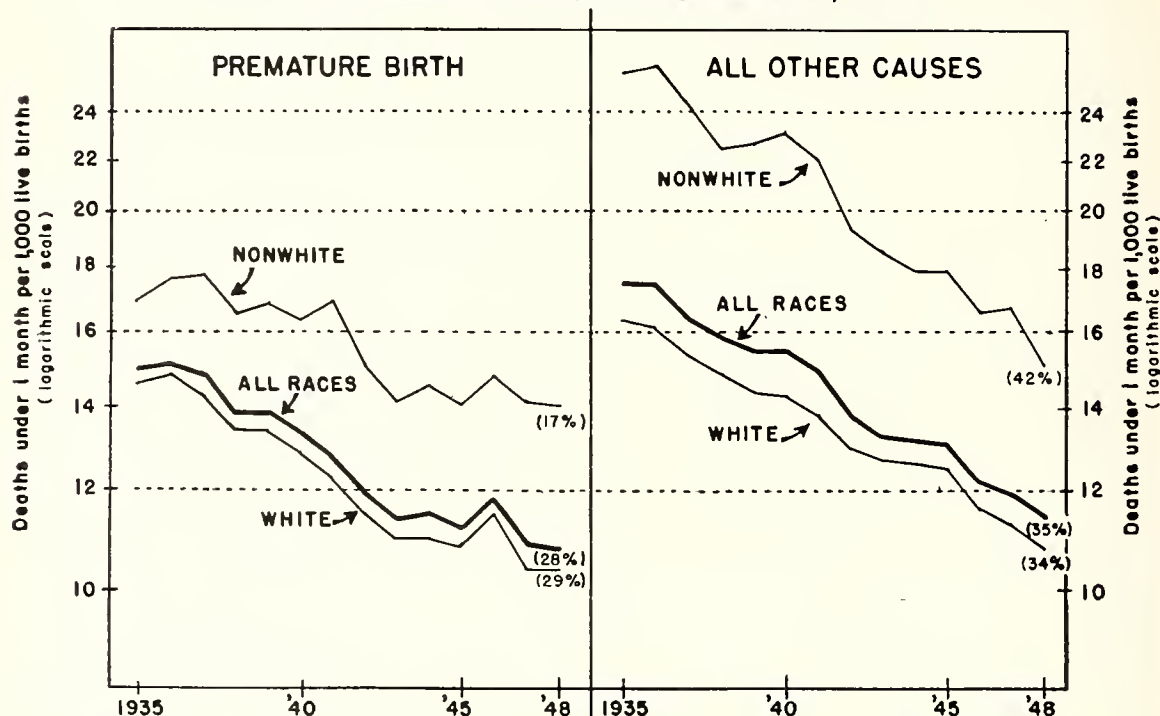


Fig. 1. Neonatal mortality rates from premature birth and all other causes, by race: United States, 1935-1948 (National Office of Vital Statistics).

1950 at Duke Hospital (tables 1, 2, and 3), the percentage of prematurity was 10.4, and neonatal mortality in these infants 20.3 per cent, accounting for 76.5 per cent of the total neonatal mortality. It is interesting to note that over the years there has been very little fluctuation in the incidence of premature birth. This fact was noted by Tyson⁽⁵⁾ also.

With these above facts in mind, we might inquire into some of the possible causes of premature delivery, with the thought that knowing these we can more intelligently aim at a program for prevention of early premature delivery.

Causes of Prematurity

Sociologic factors

Race seems to affect the incidence of prematurity. Premature birth is higher in the Negro race than in the white (Dunham⁽¹⁾, Brockway, Reilly and Rice⁽³⁾, Pomerance and Steiner⁽⁶⁾). These and other authors believe that this is because Negro babies weigh less at the same maturity level than white babies. They show that if 2250-2350 Gm. be accepted as the maximum weight for Negro

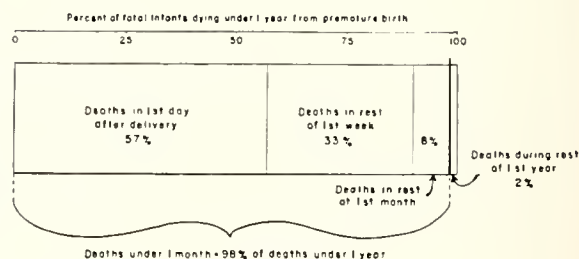
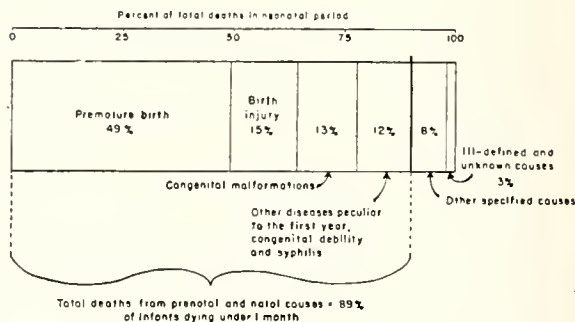


Fig. 2. Distribution of causes of death under 1 month: United States, 1948.



Source: National Office of Vital Statistics

Fig. 3. Age distribution of deaths under 1 year from premature birth: United States, 1948.

Table 1

Deliveries at Duke Hospital, 1946-1950, with Distribution of Stillborns, Neonatal Deaths, and Total Fetal Loss.

YEAR	STILLBORNS		NEONATAL DEATHS		TOTAL DEATHS		TOTAL FETAL LOSS
	Term	Premature	Term	Premature	Term	Premature	
1946	15	29	6	30	21	59	80
1947	14	38	10	20	24	58	82
1948	24	44	6	23	30	67	97
1949	19	28	10	25	29	53	82
1950	26	38	4	19	30	57	87
TOTAL	98	177	36	117	134	294	428

babies, the incidence of prematurity is about the same.

Occupation: Douglas⁽²⁾, in his exhaustive study of prematurity, found a lower incidence of premature birth in the wives of professional and salaried workers as compared to the wives of wage-earners and manual workers. However, Tyson⁽⁵⁾, in his 15 year study, noted that in spite of the marked shift from ward to private patients and the higher incidence among white patients, the incidence of prematurity remained essentially unchanged.

Primiparity and maternal age: Douglas⁽²⁾ noted that the risk of prematurity was greatest among primiparas (8.3 per cent as against 5.6 per cent for subsequent pregnancies). This seems to be a general finding. The age of the mother apparently plays a part in this picture. Douglas⁽²⁾ felt that from 26 to 30 years was the best age at which to have a first baby; the least favorable age was 20 years or younger. Waters and Wager^(7a), in a study of primiparas over 35 years of age, noted that premature delivery occurred more frequently in these women than in a similar number of primiparas below the age of 25 years. Marchetti and Menaker^(7b), in a study of young primigravidas from the age of 12 through 16 years, noted a higher incidence of prematurity in this group.

In considering the *interval between pregnancies*, Douglas⁽²⁾ noted that, whatever the mother's age, the incidence of prematurity was consistently high with birth intervals of two years or less (table 4). The lowest incidence of prematurity occurred in the 26 to 35 year age group, when pregnancies were spaced not less than 2 or more than 6 years previously.

Prenatal care seems to be an important factor in the prevention of prematurity.

Table 2

Deliveries at Duke Hospital, 1946-1950, with Distribution of Premature Infants.

Year	Total Deliveries	Term	No. Premature Infants	Incidence of Prematurity
1946	1434	1279	155	10.8
1947	1511	1379	132	8.7
1948	1430	1264	166	11.5
1949	1426	1273	153	10.7
1950	1441	1292	149	10.3
TOTAL	7242	6487	755	10.4

Table 3

Percent of Prematurity, Stillborn, Premature and Neonatal Deaths at Duke Hospital, 1946-1950

Incidence Prematurity, 1946-1950 (5 years)—
10.4 per cent

Total Fetal Loss—5.9 per cent (in 7,242 deliveries)

Percentage stillborns—3.8 per cent

Percentage neonatal deaths—2.1 per cent

Percentage premature deaths—4.1 per cent

Percentage term deaths—1.8 per cent

Total Fetal Deaths—428, 294 premature
or 68.6 per cent

Total live-born infants—6,967

Total live-born prematures—578, 117 died
or 20.3 per cent

Total live-born term—6,389, 36 died or 0.56 per cent

Total neonatal deaths—153, 117 premature
or 76.5 per cent

Table 4

Incidence of Prematurity as Related to Pregnancy Spacing (Based on data by Douglas⁽²⁾).

Years	Premature (Per Cent)
1 or less	19.3
1-2	6.4
2-3	4.8
3-4	4.1
4-6	4.0
Over 6	6.5

Douglas⁽²⁾ showed that the incidence of prematurity was almost twice as high in women who had received inadequate prenatal care as in those whose care was adequate (10.5 per cent and 5.8 per cent in first pregnancies; 9.3 per cent and 3.5 per cent in subsequent pregnancies). He also noted an increased incidence of prematurity in women who worked. This was 13.7 per cent in those who worked until 11 weeks or less before delivery, and 6.0 per cent in those who stopped 20 or more weeks prior. Tyson⁽⁵⁾ noted that in 1930 only 40 per cent of patients fulfilled the minimum requirements for prenatal care (4 visits), whereas over 90 per cent did in 1944, with little influence on the number of premature infants but an increasing number of big premature infants, and a decreasing number of babies under 1000 Gm.

Diet: Tyson⁽⁵⁾ noted that improvement of dietary intake by large amounts of proteins, vitamins, and minerals in 750 pregnant

women resulted in not a single premature delivery in this group, whereas 37 premature deliveries occurred in a similar group of patients not on a diet. Burke^(8a) found an increased incidence of prematurity in women on protein-poor diets. Similar findings were noted by Smith^(8b) in Holland, and Ebbs, Tisdall, and Scott^(8c).

Obstetric complications

Pomerance and Steiner⁽⁶⁾ noted that complications of pregnancy were present in 46.5 per cent of women going into premature labor; Bookstaver⁽⁹⁾ noted complications in 49.2 per cent; Taylor⁽⁴⁾ and others in 28 per cent.

Toxemia: Pomerance and Steiner^(6,10), in two reports, stated that toxemia of pregnancy was the most common maternal complication noted in the group of premature infants. Table 5 shows the incidence of complications as noted by Bookstaver⁽⁹⁾ and Tyson⁽⁵⁾.

Toxemia of pregnancy is generally regarded as the most common maternal complications noted in premature labor⁽¹¹⁾. Hamilton, Jeffcoate, and Lester⁽¹²⁾, in a study of fetal mortality in toxemia, stated that the factors chiefly concerned in deaths of infants born of toxemic mothers were prematurity and immaturity. The placenta was often found to be small and its blood vessels and circulation damaged to some extent, with resulting fetal anoxemia, leading to stillbirth and premature delivery. They noted a fetal loss of 13 per cent in pre-eclampsia, 25 per cent in chronic hypertension, 27 per cent in nephritic toxemia, and 48 per cent in hypertension. The greater number of deaths in this group was stillborns.

Pomerance and Steiner⁽¹⁰⁾, in a special study on the influence of toxemia, noted that it was the factor responsible for the highest incidence of stillbirths (only 14.6 per cent born alive at 33 weeks or less), but that those premature infants born alive had a fatality rate of 8.3 per cent. Figures in the same weight group were comparable in babies born alive of toxemic and non-toxemic mothers. The fatality rate of infants born of toxemic mothers from 34 to 37 weeks equalled that of babies born between 37 and 40 weeks.

Chesley and Annetto⁽¹³⁾ showed that the higher the initial pressure in toxemia, the greater the fetal mortality.

Table 5
Incidence of Maternal Complications as Related To Premature Delivery

	Toxemia of Pregnancy	Multiple Pregnancy	Premature Separation Placenta	Placenta Previa	Cord and Placental Defects	Others	Syphilis
Bookstaver ⁽⁹⁾	13.4	12.3	4.6	3.2	7.7	5.6	7
Tyson ⁽⁵⁾	13.0	13.6	4.7	2.7			
Hawkins & Merkel ⁽¹¹⁾	12.6						
Pomerance & Steiner ⁽¹⁰⁾	20.0						

Premature separation of the normally implanted placenta was found to occur in 4.5 to 5.0 per cent of the mothers giving birth to premature infants. This condition is often associated with toxemia, and this association was found by Sexton, Hertig⁽¹⁴⁾, and others, to increase fetal loss nearly five times that of toxemia alone.

Placenta previa occurs in about 3 per cent of mothers delivering premature babies. Williams⁽¹⁵⁾, in a survey of the literature, noted fetal mortality rates varying from 23 to 46.8 per cent. This mortality rate was reduced to 10 per cent in babies of 74 women who did not have bleeding until term or close to term. A similar reduction was found by Johnson^(16a,b) following conservative therapy.

Syphilis has become less and less commonly a cause of premature delivery and stillbirth. This is due to improved methods of treatment and a better public health program.

The Rh factor is absent in a slightly higher percentage of women with recurrent abortion than in women going to term according to Hunt⁽¹⁷⁾. When sensitization is present, premature delivery and stillbirth are common.

Diabetes leads to an increased incidence of prematurity and stillbirths.

Other factors

There are many women delivered prematurely in whom no particular complication is noted (approximately 50 per cent). Some of the factors mentioned under sociologic factors may have some bearing on this problem.

We enter into the theoretical realm when we try to deduce the cause of all these premature deliveries. Certain patients undoubtedly have some inadequacy of the placenta with a reduction in the placental hormones, leading to premature delivery. Ovular defects account for some premature deliveries,

as in the case of anencephalic monsters and other gross abnormalities frequently delivered prior to maturity.

Premature rupture of the membranes in the absence of abnormalities is difficult to explain. Knox and Hoerner⁽¹⁸⁾ theorize that an infectious process in the cervical canal might extend to the overlying membranes, producing inflamed and friable membranes which might give way under strong Braxton-Hicks contractions or other strain. They showed pathologic changes with acute and chronic inflammation in prematurely ruptured membranes.

Prevention of Prematurity

Sociologic factors

The important answer to most of these causes of prematurity—increased incidence in primiparas, mothers under 20 years of age, and those with inadequate prenatal care—can be stated simply: *more and better* prenatal care, with special emphasis on this particular group of patients. Planned pregnancies, with better contraceptive advice in the lower income group, will help to reduce the higher prematurity rate resulting from too rapidly recurring pregnancies. Better dietary advice, with social agency support of protein and mineral supplements for patients unable to afford them may be of help. We should like to suggest further support of laboratories investigating toxemia of pregnancy and of laboratories doing general clinical work among underprivileged patients.

Obstetric factors

The lowering of the incidence of toxemia of pregnancy will greatly reduce prematurity. Prevention of toxemia is not always possible, but its occurrence is minimal in private patients with good prenatal supervision, dietary intake, and limited weight gain. This we should strive for in all patients.

Premature separation of the placenta will decrease with the decreasing incidence of toxemia of pregnancy. However, it seems unlikely that this will ever be an entirely preventable accident. Some patients with a minimal separation and bleeding can be treated conservatively, with the realization that each increased week of pregnancy materially increases the infant's chance for life.

Placenta previa is not preventable, but its expectant treatment in many clinics in the recent years has resulted in a marked decrease in fetal and neonatal mortality be-

cause of the increased size of infants delivered. This has been done without materially increasing maternal mortality. However, this expectant treatment, in our opinion, should involve hospitalization during this period, in a medical center with emergency facilities.

Better control of the diabetic patients, with the added use of steroid hormones as advised in some clinics, has resulted in a decrease in premature deliveries and stillbirths in this group of patients.

Treatment

A great deal has been said pro and con regarding the treatment of patients who habitually lose late pregnancies or deliver prematurely.

Smith and Smith⁽¹⁹⁾, in a study of normal primiparas treated during pregnancy with diethylstilbestrol as compared to a similar group of primiparas who were untreated, noted a lower incidence of prematurity in the treated patients. Those premature infants born to the treated patients were unusually large and mature for their gestational ages. In another study⁽²⁰⁾ of 180 women who were treated with stilbestrol for the late pregnancy complications, 76 women had had spontaneous premature delivery in 83 per cent of their previous pregnancies. Despite the administration of stilbestrol, 49 per cent again delivered prematurely, but the pregnancies were generally carried longer and the infants were larger and more mature for their gestational periods, thus reducing fetal mortality from 77 per cent to 20 per cent. Davis and Fugo⁽²¹⁾, administering large doses of intramuscular progesterone (up to 50 mg. oil per day) in one group of patients with repeated pregnancy wastage, and large doses of diethylstilbestrol in another group used as a control, demonstrated a 66.7 per cent salvage in the progesterone group and a 45.2 per cent salvage in the stilbestrol group. Echner and Kunin⁽²²⁾, in a bestrol group, Echner and Kunin⁽²²⁾, in a ruptured membranes, were able to extend pregnancy in 5 of 14 patients from 2 to 10 weeks after rupture by very large doses of progesterone given intramuscularly. This therapy apparently is of little value if the patient is in active labor.

Summary

The incidence of premature delivery apparently varies from 4.8 to 15 per cent. This rate has changed little over the years. This

small group of babies accounts for at least half of the neonatal mortality. Any great reduction in neonatal mortality must mean a decrease in the incidence of premature deliveries.

Primiparity, especially in young women, too early repetition of pregnancies, inadequate prenatal care and dietary intake are accompanied by an increase in premature delivery.

Obstetric complications such as toxemia of pregnancy, premature separation of the placenta, and placenta previa are common causes of premature delivery. These complications at least double the fetal and neonatal mortality in premature delivery.

Unexplained premature rupture of the membranes and inadequate placental output of gonadotrophins and steroid hormones are causes of premature delivery in some patients.

Conclusions

1. Improved prenatal care seems to be a must if there is to be any reduction in premature deliveries. This is especially true in young primiparas, in women with too frequently repeated pregnancies, and in those with a history of toxemia. Better prenatal care is also necessary if the incidence of toxemia of pregnancy is to be decreased.

2. Premature separation of the placenta will be decreased with a decrease in toxemia. It may be managed conservatively at times. Placenta previa is not preventable, but can be treated conservatively in some patients under hospital conditions, with the prolongation of pregnancy.

3. Diethylstilbestrol apparently increases the maturity and size of the fetus, and has decreased fetal mortality rate in some clinics. Progesterone administered intramuscularly in large doses has increased fetal salvage in poor risk patients, and prolonged pregnancy in some instances of premature rupture of the membranes.

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Maintaining health: Many patients will accept treatment, placing all responsibility on the doctor, but shudder at the idea of any moderation on their part. The low value placed on health until sickness comes is astonishing, and some people even then hesitate to pay the necessary price for it. Surely, in the troubled days in which we live, health is all the more precious because so many things have fallen in value. You cannot devalue health.—Sir John Parkinson: *The Patient and the Physician*, *Ann. Int. Med.* 35:309 (Aug.) 1951.

Silence is golden, but not always in physicians. whose silence may often do far more harm than speech. Silence gives consent, and it may be consent to the fears universally felt by people who are ill. Put yourself in the patient's place—some day you may have to. Patients resent the omission of any clear statement of what is the matter and what should be done about it, and they go away and say, "My doctor told me nothing." There are constant complaints that a physician does not fully and fairly express his opinion and advice at the end of a consultation. This is every patient's due; the formal and technical report should be for his doctor.—Sir John Parkinson: *The Patient and the Physician*, *Ann. Int. Med.* 35:312 (Aug.) 1951.

THE MANAGEMENT OF LABOR AND DELIVERY IN THE INTEREST OF THE PREMATURE INFANT

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In view of the vastly improved nursing and pediatric care available to the newborn infant, it behooves the physician practicing obstetrics to re-examine periodically his responsibility for the welfare of the premature infant. Statistically, one out of every 20 infants is delivered prematurely; yet over one half of the neonatal deaths in liveborn infants occur in premature infants. In the North Carolina Baptist Hospital, during the past seven years, the incidence of prematurity has been 6 per cent, but 77 per cent of the total neonatal deaths occurred in this group. Enlightened obstetric management combined with proper neonatal care should cause a reduction in premature mortality with a significant effect on total infant salvage.

Material

The records of 458 consecutive premature deliveries at the North Carolina Baptist Hospital, from 1944 to 1950, were reviewed in an effort to isolate the factors which might affect the survival of the infant. In 29 instances of twin pregnancy, both infants were premature; therefore, a total of 487 babies were included in this study. Infants weighing less than one pound, or 454 Gm., were not included.

Condition of the Infant at Birth

In the first general review of these cases, it was apparent that a direct relationship existed between the condition of the baby at the time of delivery and its chance for survival. When the infants are divided into the two weight groups of more than 4 pounds and less than 4 pounds, the mortality rates are considerably higher among those infants who, for one reason or another, were in poor condition at delivery (table 1). In the less than 4 pound group, the corrected mortality rate for infants in good condition was only 15.9 per cent; for those in poor condition the mortality was 49 per cent. Similarly, infants weighing more than 4 pounds who were delivered in satisfactory condition had a mortality rate comparable to that of term-size babies, whereas those in poor con-

Table 1

MORTALITY

	NUMBER OF INFANTS	TOTAL DEATHS	GROSS MORTALITY	NON-PREVENTABLE DEATHS	PREVENTABLE DEATHS	CORRECTED MORTALITY
UNDER 4 LBS						
GOOD CONDITION	82	18	22.0%	5	13	15.9%
POOR CONDITION	55	47	85.5%	20	27	49.2%
TOTAL	137	65	47.4%	25	40	29.2%
OVER 4 LBS						
GOOD CONDITION	313	10	3.2%	5	5	1.6%
POOR CONDITION	37	7	18.9%	3	4	10.8%
TOTAL	350	17	4.9%	8	9	2.6%
COMBINED TOTALS	487	82	16.8%	33	49	10.0%

Table 2

CAUSES OF DEATH

	GOOD CONDITION AT BIRTH		POOR CONDITION AT BIRTH		TOTAL
	OVER 4 LBS	UNDER 4 LBS	OVER 4 LBS	UNDER 4 LBS	
CONGENITAL ANOMALIES	2	2	2	0	6
INTRACRANIAL HEMORRHAGE	0	4	0	5	9
PNEUMONIA (ASPIRATION)	3	1	1	0	5
DIARRHEA	2	2	0	0	4
ERYTHROBLASTOSIS	1	0	0	0	1
SYPHILIS	0	0	0	1	1
NO DEMONSTRABLE PATHOLOGY (ATELECTASIS)	2	9	4	22	37
	0	(3)	(3)	(7)	(3)
PREMATURITY (WEIGHT UNDER 1000 GMS)				19	19
TOTAL	10	18	7	47	82

dition had a mortality rate of 10 per cent. In the group of nonpreventable deaths, we have listed only those due to congenital anomalies incompatible with life, diarrhea late in the neonatal period, erythroblastosis, and birth weight less than 1000 Gm.

In the 487 infants there were 82 deaths. The causes of death are shown in table 2. Congenital anomalies accounted for 6 deaths. Intracranial hemorrhage caused 9 deaths, with all fatalities occurring in the less than 4 pound weight group. Aspiration pneumonia affected the larger babies. Diarrhea caused 4 deaths; erythroblastosis 1; and syphilis 1. However, in 37 deaths (or 45 per cent of the total), there was no demonstrable cause of death other than atelectasis and prematurity. Improved obstetric and pediatric care in the future should reduce the number of deaths, particularly in this category.

It is well known that the survival of a premature infant is directly related to its size and weight at delivery. The percentage of infants surviving has been plotted for each 1/2 pound weight group, from 2 pounds to 5 1/2 pounds (fig. 1). There is a progressive increase in survival rates from 20 per cent for the smallest viable infants in the less than 2 1/2 pound group, to a 99 per cent in the more than 5 pound babies. In addition, the infants in poor condition at delivery

RELATION OF CONDITION OF PREMATURE BABY AT BIRTH TO SURVIVAL

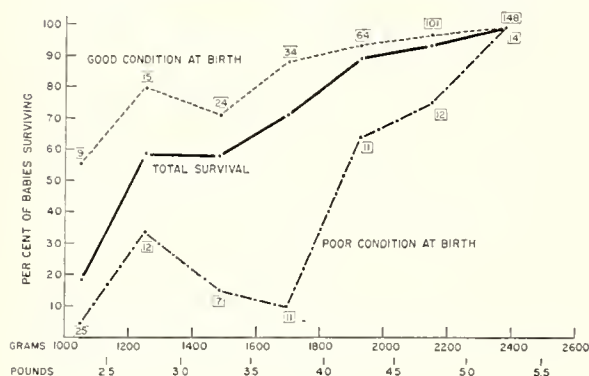


Figure 1

have been separated from those in good condition, and corresponding survival curves obtained. As is demonstrated, even the smallest infants have a good chance of growing to maturity when vigorous at delivery, while only the larger premature infants can overcome an initial depression which causes them to be listless and cyanotic at birth.

Complications of Pregnancy

It now becomes important to examine the factors influencing the condition of the infant at delivery. Complications of pregnancy, such as maternal bleeding and toxemia, certainly affect the condition of the infant, and thereby alter its prognosis.

In this series, toxemia occurred in 18 per cent of the cases, hemorrhage in 16 per cent, and syphilis in 0.7 per cent (table 3). Although the obstetrician cannot entirely prevent abnormalities, he must be prepared to treat each complication adequately, when it is recognized.

Toxemia of pregnancy, if properly managed, does not, however, alter the mortality for small infants, unless further complicated. In a recent study on the influence of toxemia on the fatality rate, Pomerance and Steiner, from the Jewish Hospital of Brooklyn, stated that they found no difference between the fatality rate of premature infants born to mothers with toxemia and that of premature infants born to mothers who had no toxemia. Their data also indicated that, from the standpoint of the fetus, it would not be necessary in cases of toxemia to carry pregnancy beyond the thirty-fourth week. The additional chance of placental separation or placental deterioration, if pregnancy is permitted to continue, cancels the advan-

Table 3
COMPLICATIONS IN 458 PREMATURE LABORS

UNCOMPLICATED LABOR	159	35%
SPONTANEOUS RUPTURE OF MEMBRANES	137	30%
TOXEMIA	83	18%
HEMORRHAGE	72	16%
CONGENITAL ANOMALIES	23	5%
SYPHILIS	3	0.7%
TWIN PREGNANCY	47	10.2%
BOTH PREMATURE	29	6.3%

tage to the fetus of the extra ounces in weight it may attain.

In another study, these authors were able to prove, statistically, that spontaneous premature rupture of the membranes had no appreciable effect on fetal mortality when contrasted to late rupture of the membranes.

Maternal bleeding, however, does definitely alter the prognosis for the premature infant. Significant vaginal bleeding, with definite placental abnormality, occurred in 55 cases of this series. In 27 instances the infant was under 4 pounds in weight, and 17 of these infants were delivered in poor condition (only 10 in good condition). There was one death among those infants delivered in good condition (a 10 per cent mortality rate), but 14 neonatal deaths, or 82 per cent fetal mortality in those who were depressed, to some degree, at the time of delivery. There were 28 infants in the more than 4 pound group; 23 were delivered in satisfactory condition, with no fatalities, and 5 were delivered in poor condition, with one neonatal death. Antepartum bleeding increases the risk to the small premature infant by producing anoxia from damage to the placental circulation directly, or by causing a drop in maternal blood pressure.

Management

In order to salvage a greater number of premature infants whose mothers are affected by these complications, the responsible physician must recognize the premonitory signs and symptoms. One must treat the hypertensive and pre-eclamptic mothers promptly, so that the gestation may be carried to a point at which the fetus has the best chance for survival. In the presence of

hemorrhagic complications the maternal blood loss must be replaced in order to avoid fetal damage from shock. Conservative treatment, when possible, will yield a higher percentage of living children. Bed rest in the hospital, in a case of premature rupture of the membranes, will occasionally permit further time for growth of the fetus before spontaneous labor occurs. The problem of syphilis can be managed satisfactorily in the early prenatal period by the routine use of serologic tests for diagnosis.

Controllable Factors

There are, however, additional factors more directly controlled by the physician, which are likely to influence the condition, and, therefore, the survival of the infant. We must include in this category the amount of analgesia, the type of anesthetic, and the method of delivery used, as well as the immediate postnatal care of the infant. For that reason, the records of this group of 458 women were analyzed, to determine the influence of these factors on the condition of the baby and its ultimate survival.

Anesthetic and Analgesic Agents

It is impossible to differentiate the individual effects of the various anesthetic and analgesic agents in this series of patients, since combinations of agents were used in practically every case. However, the relative importance of the usual combinations of analgesic and anesthetic drugs can be determined. The patients who were given no anesthetic are included in the group which received a regional anesthetic in the form of local infiltration, or spinal or caudal anesthesia. The general anesthetic used most frequently was ether. Babies delivered with ethylene, cyclopropane, or with Sodium Pentothal given intravenously, were included in the group delivered under general anesthesia. The analgesic agents used included the usual barbiturates, as well as morphine, Demerol, and Pantopon. The total dosage of the drugs and the time of their administration in relation to delivery were found to be more important than the agent itself. For this reason, analgesia was estimated upon a basis of the total dosage and the time of administration, as follows:

1. No analgesia of significance was considered to have been used if only a moderate dose of one or more standard analgesic agents was given more than eight hours prior

EFFECT OF ANALGESIA AND ANESTHESIA ON CONDITION OF INFANT AT BIRTH

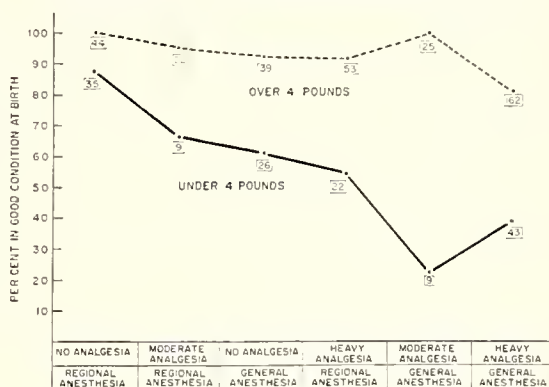


Figure 2

to the delivery of the child.

2. A patient was classified as receiving moderate analgesia when she received only one injection of morphine, 10 mg.; Demerol or potent barbiturate, 100 mg.; or a combination of one of these drugs with scopolamine, between the sixth and eighth hour prior to delivery.

3. The analgesia was considered heavy when larger doses of the drugs were used, when two or more analgesic drugs were administered, or when analgesics were given within six hours of the time of the patient's delivery.

A graphic analysis of the effects of these various combinations of analgesic and anesthetic agents is shown in figure 2. Babies were divided into two major groups, consisting of those weighing more than 4 pounds, and those weighing less than 4 pounds.

It is clear that babies weighing more than 4 pounds can be delivered with excellent results if regional anesthesia is used, or if only moderate analgesia is combined with light inhalation anesthesia. A distinctly adverse effect upon the condition of the baby is shown in the group of patients who received heavy analgesia and general anesthesia. This result is indicated more clearly by the condition of the babies weighing less than 4 pounds; 87 per cent of the group of small babies delivered with regional anesthesia and no analgesia were vigorous and pink at the time of their delivery. The use of general anesthesia and increasing amounts of analgesia resulted in a progressive decrease in the number of babies in good condition. Only 40 per cent, or less, of the

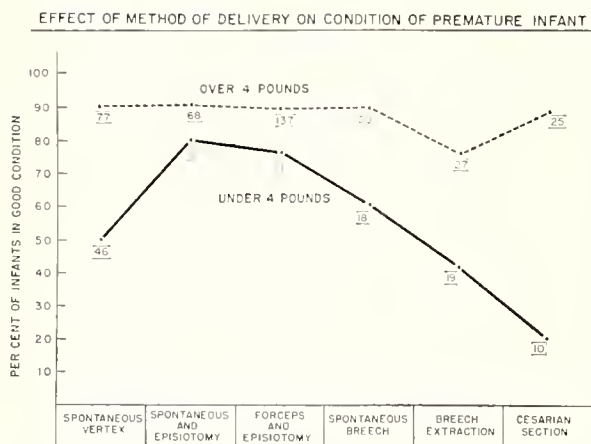


Figure 3

smaller babies were not depressed when a combination of heavy or moderate analgesia and general anesthesia were used.

Methods of Delivery

In order to compare the various methods of delivery, the series was again divided into more than 4 pound and less than 4 pound groups (fig. 3). Little difference is noted in the effect of the various methods of delivery upon the larger premature infants in a cephalic presentation. The poor result of breech presentation would be expected. Also, 90 per cent of the infants delivered by cesarean section were in good condition. In the less than 4 pound group, however, the use of the episiotomy yielded good results, as compared to the group of infants permitted to deliver spontaneously without the episiotomy. Poor results were obtained in the group of babies who were delivered from breech presentation, but the value of permitting spontaneous expulsion of the infant presenting by breech is shown by a difference of 20 per cent in the babies in good condition after this method of delivery, as compared to those delivered by breech extraction; 80 per cent of the smaller infants delivered by cesarean section were in poor condition and, in this group, there was a correspondingly high fetal mortality.

Neonatal Care

A vast majority of the premature infants received good care in the immediate neonatal period. According to our standards, good immediate care includes: (1) aspiration of mucus and fluid from the mouth and nasopharynx as soon as the mouth and nose are exposed; (2) maintenance of body warmth,

by placing the baby in a heated crib, not more than one minute after delivery; (3) administration of pure oxygen to the baby, with an open mask, within one minute of the time of delivery; (4) avoidance of all unnecessary trauma or handling of the baby.

The cord is not tied until temperature and respirations have been stabilized in an incubator and the color of the baby is good. In the very small group of infants in our series who did not receive proper prenatal care, the mortality was significantly increased.

Duration of Pregnancy

In this series, it was found that the estimated duration of pregnancy was of much less importance than the clinical estimation of the size of the baby. Viable and healthy babies were born to mothers who were estimated to be in the twenty-third week of pregnancy, according to all the usual methods of calculation; while, on the other hand, babies who by weight were regarded as premature were estimated to have been born as late as the forty-third week of pregnancy.

Failure to observe special precautions for prematurity in the management of labor for patients presumed to be at term, as well as the administration of large doses of opiates in an attempt to stop labor for patients who are presumed by calculation to have a pre-viable pregnancy, lead to the delivery of asphyxiated babies that might otherwise have survived.

Management

The best results in the management of premature labor and delivery are obtained when no analgesic or sedative drugs are used, and either local or regional anesthesia is given for delivery. Vitamin K should be administered as soon as possible and repeated during labor, to prevent neonatal hemorrhagic disease. Since fetal oxygenation is directly dependent upon oxygenation of the maternal blood, 100 per cent oxygen should be administered to the mother during the second stage of labor, and during delivery.

The premature infant must be handled with the greatest possible care. A large episiotomy should be performed before the presenting part meets the resistance of the pelvic floor, in order to avoid unnecessary trauma. Delivery must be accomplished by the gentlest possible methods, and the fetal head should be guided slowly through the

introitus. Rapid expulsion, with the sudden release of pressure which occurs, frequently results in intracranial hemorrhage. Infants in breech presentation should be permitted to deliver spontaneously to the umbilicus; gentle assistance is then indicated, but suprapubic pressure on the aftercoming head is hazardous, and should be avoided. The second of twins should be permitted to deliver spontaneously, if at all possible.

Summary

It has been shown that the condition of the premature infant at the time of delivery is definitely influenced by analgesic drugs, anesthesia, and the method of delivery.

In this series, no analgesia, regional anesthesia, and controlled delivery, with a large episiotomy, gave the highest incidence of fetal survival.

Prompt aspiration, pure oxygen, a warm crib, and a minimum of handling are essential features of the immediate postnatal care of the infant.

* * *

ANESTHESIA FOR PREMATURE LABOR

Prevention of Anoxia

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In our efforts to reduce the mortality among prematurely born infants who, while constituting but 5 per cent of the total number of live births, contribute as many deaths to the total neonatal death rate as do all their full term brothers, it would seem wise to examine closely the available data relating to the time and causes of death of these infants. It will be found that most of the deaths among these infants occur early. According to one study⁽¹⁾, one half of the premature infants who died were either still-born or died without responding to resuscitative measures. Among those who did respond to resuscitative measures but later died, one half did so within the first 24 hours after birth. It would seem, then, that if we are to affect the mortality rate among these infants to any appreciable degree, we must work chiefly through these forces that are operative during the prenatal, natal, and immediate postnatal periods.

Anoxia as a Factor in Neonatal Mortality

Among the forces which may be active during these periods and which may have a profound effect upon the survival of the premature infant is anoxia. In one study, anoxic injury was given as a primary cause of death in 60 per cent of all premature and full-term infant mortality⁽²⁾.

Anoxia during these periods may occur from a variety of causes, some of which are preventable and some are not. Some are related to anesthesia administered to the mothers, and others are not. The incidence of anoxic injury to the child resulting from efforts to relieve the mother's pain is difficult to determine accurately, but, according to some studies, it is apparently considerable⁽³⁾. What is perhaps more important, such anoxia is for the greater part preventable and occurs as a direct result of something we have done. However noble our efforts to relieve the mother's pain, we cannot escape the fact that anoxia in the child as a result of drug depression is a factor in neonatal mortality that does not occur in unattended births.

Mechanisms by which Anoxia is Produced

In order to prevent anoxic injury to the infant as a result of anesthesia, one must understand the mechanisms by which it may occur. These may be outlined as follows:

- I. Drug depression
 - A. Analgesics, hypnotics, sedatives
 - B. Anesthetics
- II. Interference with oxygenation of maternal blood
 - A. Asphyxiating doses of nitrous oxide and ethylene
 - B. Drug depression of maternal respiratory center
 - C. Interference with maternal airway
- III. Interference with the supply of maternal blood to the placental site: Fall in maternal blood pressure as a result of regional anesthesia.

Drug Depression

Anoxia most commonly occurs as a result of drug depression. Clinical experience leads to the conclusion that the placenta offers no effective barrier to the passage of any of the various depressants of the central nervous system that are used to allay the mother's pain at childbirth, or to alter her reaction to it or memory of it. This is true

Table 1
Effects of Central Nervous System Depressants
Upon Onset of Spontaneous Respirations
After Birth
(From Irving and others⁽¹⁾.)

Agents	Breathed Immediately After Birth (Per Cent)	Did not Breathe Immediately After Birth (Per Cent)
No drugs or anesthetics	98	2
Pentobarbital and rectal ether	65	35
Pentobarbital and scopolamine	63	37
Amytal and scopolamine	61	39
Amytal and rectal ether.....	59	41
Pantopon and rectal ether.....	53	47
Pernocton	53	47
Pentobarbital and paraldehyde	50	50
Pantopon and scopolamine	53	47

Table 2
Incidence of Apnea in Newborn Infants Related to
Central Nervous System Depressants
Administered to Mothers
(From Schreiber^(2a).)

	Per Cent
No anesthesia or analgesia	28.6
Anesthesia only	51.7
Anesthesia and analgesia	65.5

whether the depressants be sedatives, hypnotics, analgesics, or anesthetics.

A further important fact is that depressant drugs administered during labor seem to have a more profound effect upon the central nervous system of the infant than upon that of the mother. Anyone who has administered much obstetric anesthesia has seen instances in which mothers, whose central nervous system seemed hardly depressed at all and whose respirations were full and vigorous, have given birth to profoundly depressed infants. One pediatrician who has devoted a great deal of thought to this problem has stated that he has never seen a child born of a mother in second plane anesthesia who breathed normally⁽⁵⁾. The increased susceptibility of the infant's central nervous system to depression by drugs is the only apparent explanation for the fact that the same concentration of the drug that produces plane² anesthesia in the mother produces plane⁴ anesthesia, or something closely akin to it, in the child.

Of course, while the depressant drugs reach the infant in utero by way of the placenta, the anoxia the infant suffers occurs in the immediate postnatal period, and for the reason that, his central nervous system being depressed, there is a delay in onset of spontaneous respiration. Figure 1 illustrates the increased susceptibility of the premature

infant to drug depression, and points up the wisdom of abstaining from the use of depressant drugs in premature labor in the absence of a clearer indication than the desire to relieve the mother's pain.

Interference With Oxygenation of the Maternal Blood

The second mechanism by which anoxic injury to the infant may occur as a result of efforts to allay the mother's pain is that which occurs secondary to interference with the oxygenation of the maternal blood in the lung. This type of anoxia occurs, of course, while the fetus is in utero, and when it is dependent for oxygen upon the maternal blood brought to the placental site.

Asphyxiating gases

Possibly the most common cause of interference with the oxygenation of the maternal arterial blood is that which occurs as a result of too high a dilution of the mother's inspired air with asphyxiating anesthetic gases, namely, nitrous oxide and ethylene. These gases, compared to ether, chloroform, and the like, are extremely weak anesthetic agents. In an unpremedicated patient and in the presence of a normal degree of oxygenation of the arterial blood, they cannot produce by their action *per se* profound depression of central nervous system function. Indeed they may not be able, in the presence of an adequate oxygenation of the arterial blood, to produce that degree of depression or plane of anesthesia which may be sought. They can, however, be made indirectly to produce any degree of depression of the central nervous system. This is done when the amount of oxygen in the inspired area is diluted to a degree that interference with the oxygenation of the arterial blood occurs, resulting in anoxia that further depresses the central nervous system. As the maternal central nervous system is depressed by anoxia, the fetal central nervous system is likewise depressed. Moreover, this type of depression is more hazardous to the fetus than that which occurs as a result of drug action *per se*. For, in contrast to the depression caused by sedatives and analgesic drugs which ceases once the offending agent is removed, the depression resulting from anoxia not only alters the function of the central nervous system during the anoxia, but may cause structural changes which permanently alter the function of the central nervous system⁽⁶⁾.

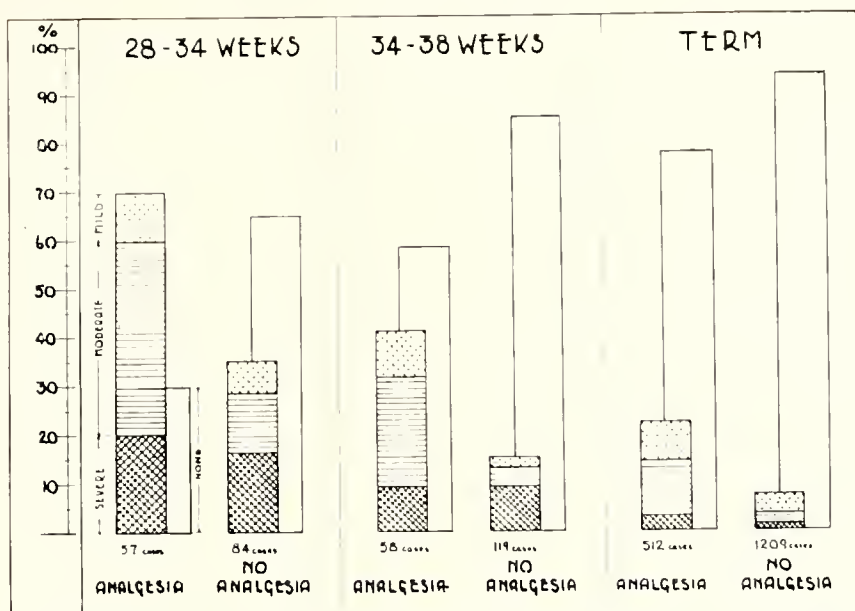


Fig. 1. The effect of analgesics upon the incidence (percentage) of asphyxia neonatorum in infants of varying degrees of maturity. (From Lund, C. J., in *Am. J. Obst. & Gynec.* 41:935 (June) 1941. Courtesy, the C. V. Mosby Co.)

The child born of a mother who has been asphyxiated is in a more precarious position than one whose central nervous system is depressed as a result of drug action *per se*. For in the case of the child whose depression is a result of anoxia, the dangers of delayed onset of extra-uterine respiration are to be added to the dangers that have already resulted from anoxia occurring before birth.

Eastman⁽⁷⁾ has studied the problem of anoxia and the resulting neonatal apnea in the infants whose mothers were given nitrous oxide and oxygen anesthesia in asphyxiating doses. In his experience, nitrous oxide and oxygen given in proportions of 90 per cent to 10 per cent—and it is not uncommon to see it so administered—for three minutes or longer, resulted in severe degrees of anoxia in 1 out of 3 babies. When given in proportions of 85 per cent to 15 per cent for less than three minutes, it did not seem to cause harmful anoxia. In this connection, it should be pointed out that, with proper care in administration, nitrous oxide comes nearest to producing the ideal in obstetric anesthesia than does any other agent, and it is a shame that abuse of the agent has caused it to fall into disrepute. One can, with nitrous oxide, relieve the mother's pain without causing her to lose consciousness, without asphyxiating her or her baby, and without interfering with the prompt onset

of spontaneous respiration in the child after birth. If it seems wise to allay the pain in the first stage of premature labor, this technique would seem the most rational way to do it.

Other means

Other means by which anoxia of the fetus may occur secondary to interference with the oxygenation of the maternal arterial blood are: (1) depression of the respiratory center of the mother as a result of drugs acting on her central nervous system; (2) obstruction to the mother's airway. Space will not allow me to discuss the various mechanisms by which this obstruction may occur under anesthesia. Suffice it to say that the administration of a general anesthetic to a mother, particularly one in premature labor, when one cannot be sure beyond a reasonable doubt that her stomach is empty, would seem hard to justify.

Interference with Blood Flow Through the Placental Site

A third means by which measures designed to relieve the mother's pain of labor may cause anoxia in the child is by interference with the free flow of blood through the placental site, due to falls in maternal blood pressure. There is not currently available a local anesthetic agent which, when ap-

plied to a mixed nerve, will selectively anesthetize the pain fibers and leave unaffected those fibers having to do with the control of blood pressure. Therefore, with all the methods of regional anesthesia where-in exists an avenue along which the local anesthetic agent may travel from the site of injection to that part of the neuraxis where the nerve fibers for the control of blood pressure are concentrated, the threat of a fall in blood pressure exists. Such avenues exist with both spinal and peridural anesthesia, whether by the caudal or lumbar approach.

In a report of 1200 caudal anesthetics for labor, 20 per cent of the fetuses showed signs of distress (slowing or irregularity of heart tones, expulsion of meconium) shortly after the anesthetic drug was injected⁽⁸⁾. In 4 instances, signs of fetal life disappeared after the institution of caudal anesthesia. Falls in blood pressure that are well tolerated by the mother may prove lethal to the fetus.

Advantages of Regional Anesthesia

The admirable results that can be obtained with properly managed regional methods of anesthesia in premature labor are illustrated by the report of Master and Rose⁽⁹⁾, who were able to report one of the lowest

death rates among premature infants in the literature (10 per cent). Moreover, they rightly pointed out the positive protection these methods of anesthesia afford the delicate premature infant through relaxation of the pelvic floor. To obtain such results, however, more than technical skill is required. Understanding of the alterations in the physiology of parturition, circulation, and respiration these methods may entail are needed, so that deleterious effects may be prevented or combated, should they occur.

There is available, however, a method of regional anesthesia which seems to have much to commend its use in premature labor—pudental block. While it will not give as complete relaxation of the pelvic floor as will the more commonly used methods of regional anesthesia, neither will it *per se* cause fetal anoxia. The simplicity by which the block can be accomplished (fig. 2) either in hospital or in home deliveries commends its use. While it will not relieve the pain of the first stage of labor, it will relieve that of the second stage, which has been shown by recent fairly objective measurement to be the most intense⁽¹⁰⁾. Under present conditions in North Carolina, this method of anesthesia, if widely adopted, would seem to offer the most promise in reducing the mortality among prematurely born infants.

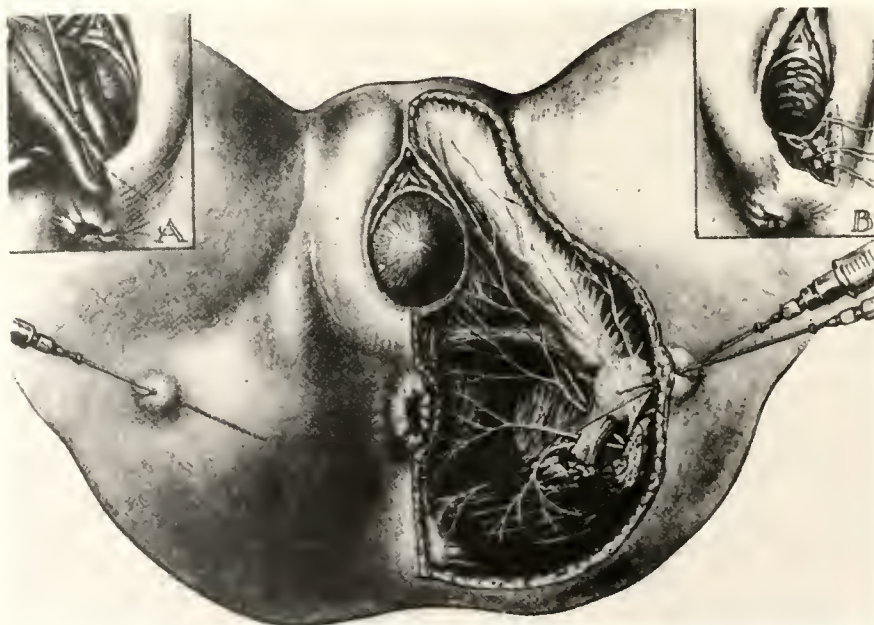


Fig. 2. Infiltration of the perineal branch of the posterior cutaneous and the pudental nerves for delivery. Insert A shows the episiotomy, and insert B shows the repair. (From Pitkin's Conduction Anesthesia, edited by Southworth, J. L., and Hingson, R. A. Courtesy, the C. V. Mosby Company.)

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THE HOSPITAL MANAGEMENT OF PREMATURE INFANTS

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The first step in keeping the premature infant alive is the initiation of adequate respiration. Fortunately, even in the premature infant, resuscitation is spontaneous in the great majority of cases. Only the usual procedures of milking the trachea and aspiration of material from the oropharynx are necessary. However, as the immature infant is more subject to depression of the respiratory center due to anesthesia, narcosis and fetal anoxia, and since his thoracic cage and respiratory muscles are less strong, there is always the possibility that resuscitation will be necessary.

Aspiration of material also is more frequent because of the decreased laryngeal reflex. For several years we have been interested in this problem, and met it at first by tracheal suction followed by continuous intratracheal oxygen through a Foregger valve set at a maximum of 15 mm. of mercury pressure. Under this method many infants who did not breathe for 10 minutes to two hours remained pink and subsequently were normal. We found, however, that continuous oxygen pressure did not allow for adequate elimination of carbon dioxide, and that absence of the normal pumping action of the respiration tended to throw an increased

load on the cardio-circulatory system. Therefore, on the advice of Dr. C. R. Stephen, our anesthesiologist, we are now using intermittent oxygen pressure through an intratracheal catheter in series, with a bag and a non-rebreathing valve, so that the intratracheal pressure may be increased and decreased, and insufflation occurs at the rate of 16 to 20 times per minute. The water manometer, which is usually set at 10 cm. of water pressure, acts as a safety valve. This apparatus (description to be published) is easy to use and relatively inexpensive as compared to the usual commercial respirator.

The importance of administering oxygen to the premature infant for several days following birth must be stressed, as there is a relative tissue anoxia (especially in the small baby) although his color may be good. Such factors as the easily collapsible thorax, lack of capillary and alveolar epithelial development, and the presence of fetal hemoglobin make the continuous administration of oxygen necessary for the smaller premature infants for one to two weeks. This can be accomplished in the Armstrong incubator, with an oxygen concentration of about 50 per cent, by a continuous flow of 3 liters per minute with the upper vents closed. If the incubator has been opened, the flow must be increased to 15 liters per minute for two minutes after closing it. It is necessary to test each incubator, as they may vary in this regard. Oxygen is second only to nursing care and is the main expense in the premature nursery. It is often used longer than necessary.

Sulfonamide and Penicillin Therapy

Also worthy of mention is the early use of sulfonamides or penicillin in (1) infants who have required resuscitation, (2) infants born of infected mothers or mothers whose membranes have been ruptured for some time, (3) infants who are born outside the hospital, and (4) infants who display such symptoms as listlessness, vomiting, diarrhea, and fever. Therapy should be begun at once before a diagnosis is made, as waiting may result in death of the infant. Where kidney function has been well established, Gantrisin, 1 grain per pound per day, may be given orally. Otherwise, we use penicillin, (10,000 units every 6 hours). Streptomycin, 50 mg. every 6 hours, also should be given

if diarrhea occurs. We have seen no increase in monilia infections in our premature infants, although we have used penicillin for the past six years. Recently we have used terramycin, 20 mg. per pound, per day, but this causes diarrhea in many infants.

The Prevention of Infection

In order to aid in the prevention of infection, the premature nursery should have several units. No unit should contain more than four beds. First, one needs a small observation unit in which infants admitted from the outside of the hospital may remain for approximately one week, during the first five days of which they are given penicillin as described above. In addition to the regular nursery and observation unit, there should be, at some distance if possible, an isolation unit for those infants who are actually ill when they come in and for those who acquire infection in the nursery. We find that infants often will be admitted to the observation unit with unrecognized infection, and these require immediate isolation.

Since in many cases physical evidence of infection in premature infants does not appear until it is too late for therapy, it is necessary for the physician in charge to have an effective method of determining the infant's condition daily. This is best accomplished by adequate notes recorded by the nursing service at the time of each feeding. These data consist of the axillary temperature, method of feeding, type of feeding, the amount given, the amount refused, and any regurgitation; also, how well it is taken. The number and appearance of the stools, urination, medicaments, vitamin preparations given, and a comment on the infant's condition are included; the house officer's notes are also recorded on this sheet. A rapid study of this sheet for each 24 hour period in conference with the house staff and the nurse in charge gives an adequate picture of the infant's progress.

Nutrition

Much has been written concerning weight curves, with emphasis on the need for rapid weight gain. This, it seems to us, has been

stressed too much, even to the point of "stuffing" the infant, with resultant regurgitation and aspiration into the trachea.

In infants weighing less than 1500 Gm. we routinely use gavage feeding, but substitute one to two nipple feedings as soon as the infant's condition will allow. The change to nipple feeding should be gradual. Infants weighing less than 1500 Gm. do not require food before 48 hours of age.

Hydration of the premature infant has been greatly overstressed, especially the repeated use of physiologic saline solutions which entail a marked increase in chloride intake. We seldom find it necessary to give subcutaneous fluids to premature infants, and then use equal parts of physiologic saline and 5 per cent dextrose solutions.

Recent reports on the use of ACTH in premature infants suggest that it is not without danger, although it may be of some value in arresting retrolental fibroplasia. It should not be used except under carefully controlled conditions and for a specific purpose.

It is our practice to supplement the diet of the premature in the second week with a water soluble multiple vitamin preparation containing vitamins A, D and C, and the B complex, gradually reaching a dosage of 0.6 to 1 cc.* daily, and in addition to give 50 mg. of vitamin C daily, making a total of 100 mg. daily. Vitamin C has proved to be valuable in the metabolism of aromatic amino acids, which are found in relatively large quantities in cow's milk.

The administration of iron does not prevent the development of the so-called anemia of prematurity, but begun at 6 weeks' of age is prophylaxis against the later incidence of iron deficiency anemia. We use 2 to 4 grains of ferrous iron in liquid form daily.

Conclusion

Once a routine has been established, the hospital care of the premature infant resolves itself into adequate nursing, with one nurse on duty each eight hour period for not more than six infants. After the initial examination the physician should confine his duty to inspection of the nurses' records and daily consultation with her concerning the infant's progress.

*Six-tenths cubic centimeter contains vitamin A 5000 U.S.P. units, vitamin D 1000 U.S.P. units, B₁ 1 mg.; B₂ 0.5 mg.; C, 50 mg.; niacinamide 10 mg.

EVALUATION OF THE NORTH CAROLINA PREMATURE INFANT CARE PROGRAM

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Premature birth is the greatest single cause of neonatal and infant mortality in North Carolina, as well as in the United States⁽¹⁾. Recognition of this fact has resulted in the establishment of premature infant care programs such as this state has had for the past two and one half years..

Any public program needs to be evaluated at intervals in terms of its objectives so that the effort and the money expended may be directed into those channels which will strengthen it. Prematurity is recognized as both an obstetric and a pediatric problem. The obstetric effort is directed toward better prenatal care, such as the detection and treatment of abnormal conditions of pregnancy, to lessen the chance of premature labor. If premature labor is imminent, then the management of the labor and delivery should be aimed toward minimizing the risk to the premature infant without endangering the mother⁽²⁾. The pediatric aim is to place the premature infant in the type of environment that will give him the optimum chance for survival. To these may be added a third approach—that of public health. This principally has to do with the administration of such a program, case finding, and follow-up.

A premature infant care program consists first of care, which includes early case-finding, transportation, and the use of properly equipped hospitals manned by trained medical and nursing personnel, in strategic areas throughout the state. Investigation of the home and the follow-up of the infant's progress is part of the continued care in such a program. A secondary aspect, which is just as important as care, is the education and training of doctors, nurses, and the public. A third phase is that of administration. This paper will attempt to discuss and evaluate the above components of the North Carolina Premature Infant Care Program.

¹From the North Carolina State Board of Health, Raleigh, North Carolina.

Care

Case-finding

In the early days of the program a bill was passed by the Legislature requiring the reporting of all prematurely born infants to the local health departments within 24 hours. This law needs to be emphasized further; a number of physicians and hospitals are not reporting births until after the infant becomes ill. The health department is then called and a request is made that the baby be taken to a premature center.

Transportation

Each county health department should be furnished with at least one infant carrier equipped with oxygen and heat. The majority of the counties in this state are so equipped. Conferences are held with the local public health nurses to instruct them in the program and in the use of the carriers, which may also be used to transport infants to local hospitals as well as to the state sponsored premature centers.

Hospital care

The original plan called for the establishment of seven premature infant centers in the larger hospitals of the state, located within a 60 mile radius of the majority of the population. The program was initiated in the only two hospitals in the state that approached the standards of a qualified premature center, as set by the American Academy of Pediatrics⁽³⁾. The two original centers were enlarged and four others have been opened, making six centers in the state with a total capacity of 85 beds.

All of the hospitals, with the exception of one which is used as a teaching hospital, bore their own costs of remodeling. In one instance the Junior League supplied the funds necessary to establish the center. The seventh of the originally proposed centers has not been opened because of the lack of funds. This proposed center, which was to be located in the Charlotte area, is greatly needed. In the past year the program has had to reduce the premature beds sponsored by it to two thirds of the capacity of the centers. Since there are still not enough beds in the approved centers to take care of the requests for hospitalization, priority has to be given to infants in the lower weight groups. The medical and nursing care which the premature infants receive is of good quality, and there has been, in most cases, a marked re-

Table 1

Duke Hospital Premature Infant (White) Mortality Statistics Before and After Opening of Center*

Weight Group	Before Center (1947)		After Center			
			First Year		Second Year	
	No. Infants	Mortality	No. Infants	Mortality	No. Infants	Mortality
1000 Gm. or less	5	100.0%	3	100.0%	7	57.1%
1001-1500 Gm.	11	63.6	21	28.5	13	7.4
1501-2000 Gm.	15	26.6	27	29.6	21	14.3
2001-2500 Gm.	55	5.4	41	24.3	44	0
TOTALS	86	22.2%	92	19.5%	85	9.4%

*Infants born in hospital and admitted from outside.

duction in the mortality since the centers opened (tables 1, 2, 3, 4, and 5).

Secondary centers

A plan was formulated to encourage other hospitals in the state which had a qualified pediatrician on the staff to establish premature nurseries. A graduate nurse from the hospital was given a scholarship in a course in premature care, lasting from six to eight weeks. On her return, the nurse was placed in charge of the premature nursery. The hospital was given two incubators and designated as a secondary center. In the past year four of these secondary centers have been established. Other hospitals which have been enlarged through grants of the Medical Care Commission have shown interest in the premature problem by requesting consultations in the establishment of premature nurseries.

Investigation of the home and follow-up

The homes of the infants who are in the centers are visited by the local public health nurses prior to their discharge. The families are advised as to the needs and equipment. Other agencies, such as the Welfare Department, have been cooperative in aiding needy families. When the infant returns home, the local public health nurse usually makes several visits.

A one year follow-up of all premature infants coming under the program has been instituted. Questionnaires urging that the parents take the infant to their physicians or the local health department for examination are sent out on the child's first birthday. Results of the first 119 of these questionnaires reveal that 10 of the infants died within the year they graduated from the center. Four of the deaths were due to pneumonia, 4 to diarrhea and enteritis, 1 to con-

Table 2

Biltmore Hospital Premature Infant Mortality Statistics (White) Before and After Opening of Center*

Weight Group	Before Center (1948)		After Center			
			First Year		Second Year	
	No. Infants	Mortality	No. Infants	Mortality	No. Infants	Mortality
1000 Gm. or less	1	100.0%	11	81.8%	15	86.6%
1001-1500 Gm.	2	100.0	26	46.0	27	18.5
1501-2000 Gm.	0	0	46	19.0	42	19.0
2001-2500 Gm.	4	75.0	17	0	7	0
TOTALS	7	43.0%	100	30.0%	91	28.5%

*Infants born in hospital and admitted from outside.

Table 3

Baptist Hospital Premature Infant Mortality Statistics (White) Before and After Opening of Center*

Weight Group	Before Center (1948)		After Center			
			First Year		Second Year	
	No. Infants	Mortality	No. Infants	Mortality	No. Infants	Mortality
1000 Gm. or less	6	83.0%	6	50.0%	5	60.0%
1001-1500 Gm.	8	62.5	21	38.0	40	20.0
1501-2000 Gm.	11	9.0	47	8.5	55	12.7
2001-2500 Gm.	43	0	64	9.4	86	9.3
TOTALS	68	16.2%	138	15.2	186	14.0%

*Infants born in hospital and admitted from outside.

Table 4

Watts Hospital Premature Infant Mortality Statistics (White) After Opening of Center

Weight Group	First Year		Second Year	
	No. Infants	Mortality	No. Infants	Mortality
1000 Gm. or less	5	80.0%	8	75.0%
1001-1500 Gm.	15	53.3	9	22.0
1501-2000 Gm.	28	15.0	12	17.0
2001-2500 Gm.	68	0	64	3.0
TOTALS	116	13.8%	93	12.0%

Table 5

Rex Hospital Infant Mortality Statistics (White) Before and After Opening of Center*

Before Center (1944-1949)

TOTAL ADMITTED	439
TOTAL EXPIRED	144
MORTALITY	32.8%

After Center

Weight Group	First Year	
	No. Infants	Mortality
1000 Gm. or less	5	80.0%
1001-1500 Gm.	10	70.0
1501-2000 Gm.	15	20.0
2001-2500 Gm.	40	12.5
TOTALS	70	27.1%

*Infants born in hospital and admitted from outside.

Table 6
Deaths After Discharge from Premature Centers*

Weight Group	No. Discharged	No. Expired	Causes of Death		
			Respiratory	Gastrointestinal	Other
1000 Gm. or less	2	0	0	0	0
1001-1500 Gm.	42	3	2	1	0
1501-2000 Gm.	58	4	2	1	1 (C.H.)
2001-2500 Gm.	17	3	1 (T.B.)	2	0
TOTALS	119	10	5	4	1

genital heart disease, and the other to tuberculosis. These deaths, with the possible exception of the one due to congenital heart disease, are preventable. In each case the death is queried. The infant who died of tuberculosis had an itinerant uncle with an open case of tuberculosis (discovered later), who had visited the family after the baby returned home.

The mental and physical development of the 109 infants who survived was not very different from that of a full-term infant, with the exception of the 2 in the lowest weight group (less than 1000 Gm.). The average weight at one year was between 19 and 21 pounds. The average infant sat alone at 7 months, walked at 10 to 13 months, while the 2 in the lowest weight group sat alone at 8 months and walked at 18 months (table 6).

The remainder of the 109 infants that survived the first year had abnormal findings in 18 cases on physical check-ups at one year. Two of the infants in the 1000 to 1500 Gm. weight group had retrolental fibroplasia. These, fortunately, were the only cases in the 109. There were 3 cases of cerebral palsy, 1 of hernia, 1 of harelip, 2 of strabismus, and 1 of rickets.

It is evident that our follow-up of these premature infants needs to be strengthened by a closer supervision during the first year. This might be accomplished by contacting the parents at stated intervals throughout the first year, probably at the third, sixth, and ninth months, advising the mother in the care of the premature baby, and urging frequent check-ups by a physician. The importance of this care can be impressed on the mother by the nurses in the premature centers before the child leaves. The local public health nurses can then continue to maintain close contact with the family for at least one year.

*One year follow up on initial 119 premature infants.

Education and Training

Education is an integral part of any premature infant program. Facilities for training professional personnel in premature infant care are necessary. Training centers outside the state may be used until one is established in the state.

Duke University Hospital is being developed into a training center. At present a three weeks' course is being offered to public health nurses, and plans are underway to provide an accredited clinical course in premature care to serve the needs of those who work in hospital nurseries. It is hoped that with the establishment of a training center at Duke University, close coordination between the pediatric department, obstetric department, and the nursery can be worked out to give the very best premature training and experience.

The program has helped in the establishment of an accredited course in premature care for Negro public health nurses at the North Carolina College in Durham. This is open not only to local public health nurses but also to regional public health nurses.

Refresher courses for general practitioners, pediatricians, and obstetricians are needed in the prevention of premature births as well as in premature care. The program has focused attention on the problem of prematurity, which has been a frequent subject of the medical symposiums held in the state.

Administration

The Maternal and Child Health Section of the Department of Public Health, which is concerned with the activities to improve the care of mothers and infants, is the logical administrative unit for a statewide Premature Infant Care Program. The State Health Department, through its local organizations and public health nurses, reaches the people in all parts of the state. The administrative unit plans and coordinates the program, with the aid of frequent conferences with the hospital, medical, and public health personnel.

Accurate records and statistics regarding premature infants are needed. 1950 was the first year in which birth weight was recorded on birth certificates in this state, making it possible to tell with considerable accuracy how many premature infants were born in North Carolina in the past year, and also the percentage of infants in each

Table 7
Incidence of Premature Births in North Carolina*
1950

Live Births	Premature Weight	Incidence of Premature Births
106,359	7,873	7.4%
Classification of Weight Group	Premature Births by No. Births	Weight Groups Per cent
1000 Gm. or less		
(2 lb., 3 oz. or less)	374	4.8
1001-1500 Gm.		
(2 lb., 4 oz.-3 lb., 4 oz.)	678	8.6
1501-2000 Gm.		
(3 lb., 5 oz.-4 lb., 6 oz.)	1483	18.8
2001-2500 Gm.		
(4 lb., 6 oz.-5 lb., 8 oz.)	5338	67.8

*Source: Division of Vital Statistics, North Carolina State Board of Health.

of the four weight groups. It is well to point out that instead of the 5 per cent figure usually given as the percentage of premature births in North Carolina, the state has 7 per cent (table 7). The majority of the infants are in the highest weight group, in which the prognosis is good.

One of the policies of the program which needed further study was that of determining which parents of premature babies needed financial aid through the program. Under some other state programs only families that are certified for welfare assistance are allowed financial aid in the hospitalization of premature infants. It has been the contention of the Premature Program advisory group, however, that a number of families in the middle income group who need aid with this long-term care would be screened out by adherence to the policy of welfare certification.

In the last few months a graduate student in the School of Public Health of the University of North Carolina, Dr. James Wardlaw, made an economic study of the first 1,068 infants that were cared for under the North Carolina Premature Infant Care Program. Out of 930 cases in which an income was reported, 891 of the families had an income of \$200 or less per month. Three hundred and sixty-one of the 891 had an income of less than \$100 a month. Seven hundred and nine out of 930 applicants were listed as renting their homes, and 192 owned their own homes. It is doubtful whether any of the parents whose income is \$200 a month or less could have financed the hospital costs of caring for a premature infant whose average hospital stay is 28 days, at an average cost of about \$410.

Results

The Public Health Statistics Section of the North Carolina State Board of Health reports that the premature death rate increased in the year 1948 to 1949, but the 1949 to 1950 figures show a decrease (13.6 to 13.4)* per 1000 live births. The infant death rate in the state dropped from 37.9 per 1000 live births in 1949 to 34.8 in 1950*. The 1950 figure will be the lowest infant death rate recorded in North Carolina if the 1950 provisional figures hold.

It is hoped that the Premature Infant Care Program will stimulate more interest in premature infants, and, perhaps research in regard to the causes of prematurity. Certainly more information on the obstetric aspects of prematurity is urgently needed. One of the contributions the program has already made to the state is that it has stimulated interest in improving the newborn services in other hospitals, as evidenced by the increase in inquiries as to the establishment of secondary centers, and in requests for consultations regarding the nurseries of newborn and premature infants, and formula rooms.

*1950 provisional figures.

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U.S. Maternal Death Rate Establishes New Low Record

For the first time in history, the maternal death rate for a large nation has been pushed slightly below the apparently irreducible minimum of one per 1,000 live births, according to the *Journal of the American Medical Association* (Nov. 25, 1950).

The new record compares with 1.2 maternal deaths per 1,000 live births in 1948 and with 6.2 in 1933. On that basis, the *Journal* concluded that "childbirth has been made quite safe." In 1949 there were thirty states with rates less than 1.0, two at exactly that level and only seventeen above.

"The fact that the chances of an expectant mother surviving the diseases of pregnancy, childbirth and the puerperium [confinement period] are now better than 999 out of 1,000 is truly a story of human and social progress," said the *Journal*.

The reduction in the death rate from 1933 was attributed to several factors: (1) an increasing percentage of births in hospitals, although improvements in the medical care provided in home births have been pronounced; (2) development of prenatal care; (3) health education; (4) the administration of sulfonamides, antibiotics, whole blood or blood derivatives, and (5) improvement in training in obstetrics.

Unlike the trend in many nations, the number of births attended by midwives in the U.S. is being rapidly reduced, it was pointed out.

URETEROSIGMOIDOSTOMY: PAST AND PRESENT

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and

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CHARLOTTE

The purpose of this discussion is to present modern thinking on transplantation of the ureters into the bowel, and to contrast the old so-called tunneling method, advocated by Coffey, with the new mucosa-to-mucosa technique, advocated by Cordonnier and made possible by the preparation of the bowel with the modern application of chemotherapy and the antibiotics.

The Coffey Technique

Until the introduction of the antibiotics and certain chemotherapeutic measures for sterilizing the bowel, it was impossible to obtain a satisfactory ureteral transplant except by the so-called "tunneling method" which was employed by Coffey and is still used by many urologic surgeons. This was true because the coliform group of organisms produced a breakdown at the suture line.

In the Coffey method, the bowel is tunneled and the ureter is brought through the tunnel, with the end opening into the lumen of the bowel, as shown in figure 1. This technique has several undesirable features. (1) It is not a principle that is employed in other branches of surgery, such as in the bowel and blood vessels. (2) At the point where the bowel is tunneled, scarring and fibrosis occur and later on produce constriction, with dilatation of the ureter above; and, of course, infection is usually associated with poor urinary drainage. (3) There is usually present also a concentric fibrosis of the ureteral stump that projects into the lumen of the bowel. To quote Nesbit⁽¹⁾: "But progress in science often makes the impossible of yesterday a reality today; and the agents now available for combating infection have encouraged the re-evaluation of this once-discarded procedure. The results appear to be most encouraging."

Mucosa-to-Mucosa Technique

Chaput, in 1896, was the first to employ a mucosa-to-mucosa anastomosis of the bowel and ureter, but abandoned the idea. In

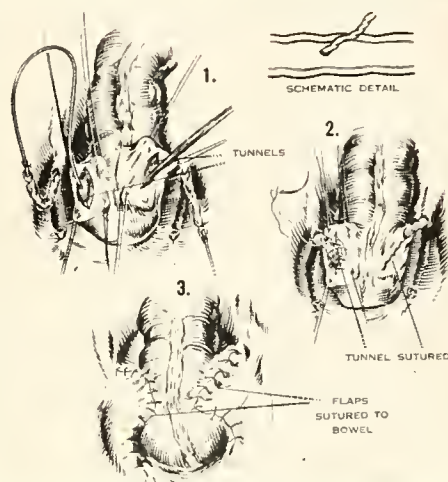


Figure 1

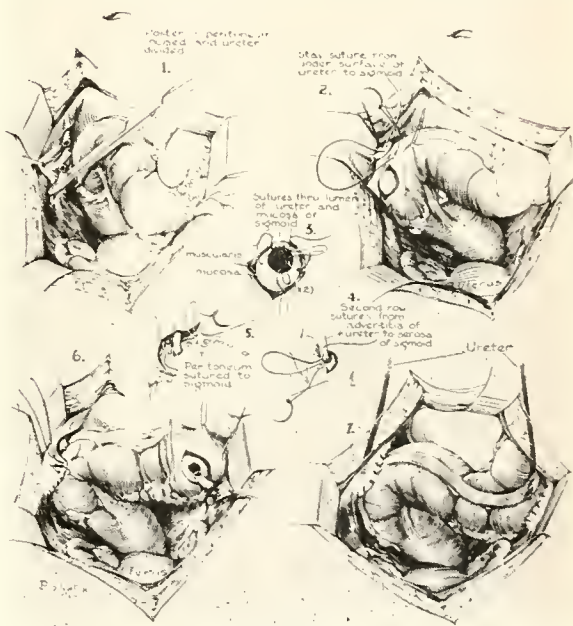


Figure 2

later years the application of this technique has occupied a prominent place in the field of genitourinary surgery. The indications are clear-cut:

1. Exstrophy of the bladder (curative)
 2. Early carcinoma of the bladder, where there is a chance of a cure by cystectomy used in conjunction with this procedure
 3. Interstitial cystitis, wherein there is no chance of improvement by other available procedures
 4. Inoperative carcinoma (palliative).
- Cordonnier in 1947 put the mucosa-to-

mucosa technique on a sound basis. His technique differed in the following respects from those previously employed (fig. 2): (1) in bringing the bowel to the ureter rather than the ureter to the bowel; (2) in transplanting mucosa to mucosa; and (3) in eliminating the submucous tunnel⁽¹⁾.

Advantages

It has been pretty well established that if stasis in the urinary tract can be eliminated, recurrent episodes of infection are less likely to occur. It is our belief, moreover, that the so-called pyelonephritis usually associated with the Coffey method of transplantation is due to stenosis at the site of the anastomosis rather than to the fact that the ureter empties into the bowel, inasmuch as ureteral peristalsis is a good impediment for the reflux of urine up the ureter. In fact, it is virtually impossible to cause reflux up the ureter even after the so-called ureterovesical valve has been destroyed if the ureter is of normal caliber and has normal peristalsis. We are convinced that the so-called ureterovesical valve is more or less a myth. It has been shown by Hinman that in fowls there is nothing analogous to the uterovesical valve.

Another factor in urinary drainage which must be considered is undue angulation of the ureter. By bringing the bowel to the ureter without disturbing the course of the latter, as is done in the Cordonnier method, one is much less likely to encounter stasis.

It is a fundamental principle of intestinal surgery that if postoperative scarring and stenosis are to be avoided, a mucosa-to-mucosa anastomosis must be done. Why, therefore, would this not be true in anastomoses of the ureter to the bowel? We see no reason why this procedure cannot be performed if one can anastomose blood vessels or one portion of the bowel to the other. The principle is the same.

By eliminating the so-called submucous tunnel, one also obviates another site for stenosis leading to infection and the concomitant sequelae. What would happen if one took a piece of bowel and introduced it into the side of another portion so that 2 or 3 cm. of the end of one portion protruded into the lumen of the other? This is exactly what is done in the Coffey technique. One can readily see how this would lead to stasis by kinking of the ureteral stump

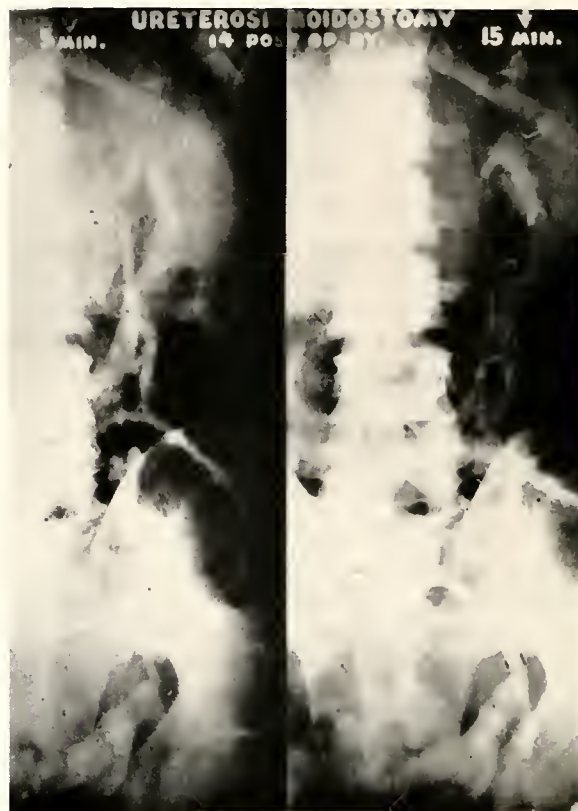


Figure 3 (Case 2)

which protrudes in the lumen of the bowel, if it did not slough off; and if sloughing did occur, one could not be sure where it would end.

Preparation of the bowel

The success of the mucosa-to-mucosa method depends on careful preparation of the bowel. This is done by means of a low residue diet for about five days preceding the operation, along with magnesium sulphate given orally, and enemas. The patient is also given sulfathaladine for several days before and after the operation. Oral streptomycin or one of the other oral antibiotics can be used, if desired. However, we have found that 1. Gm. of sulfathaladine given three times daily for about four days preceding the operation, and from 10 days to two weeks following the operation is effective. A Wangenstein suction is used for about 24 to 48 hours following the operation.

Illustrative Cases

It is our opinion that the days of "dunking" and "tunneling" in ureteral transplants are nearing an end. Because the proof of a

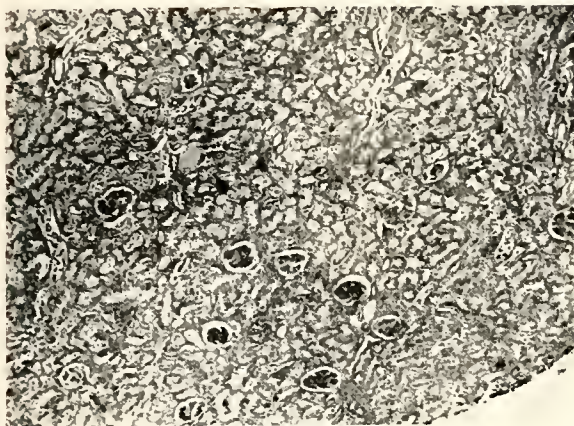


Figure 4 (Case 2)

method lies in the results, the following cases are presented. The first case was selected to illustrate the Coffey technique, while the following five cases illustrate Cor-donnier's method. These 5, we would like to emphasize, are consecutive cases, and thus provide a more accurate idea of the usefulness of the procedure than could be obtained from selected cases.

Case 1 (Coffey technique)

A 31 year old Negro man was admitted to the hospital with a diagnosis of extrophy of the bladder. The physical examination yielded no unusual findings, and a bilateral retrograde pyelogram revealed normal kidneys on both sides. The right ureter first was transplanted by means of the Coffey technique. In about two weeks the left ureter was transplanted and the bladder removed.

The patient's postoperative convalescence from both operations was rather stormy, with many periods of chills and fever. He was finally discharged from the hospital about five weeks after the first ureteral transplant. After leaving the hospital, he had repeated episodes of chills and fever, and was finally admitted to the hospital about six months after the operation, at which time he died. On autopsy both kidneys were found to be filled with multiple abscesses, and there was virtually no recognizable kidney parenchyma. Both ureteral orifices, where they entered the bowel, were markedly stenotic, and would admit only a small probe. There was marked scarring around the site of the ureteral anastomosis.

Mucosa-to-Mucosa technique

Case 2

A 38 year old white man was admitted to the hospital with a history of pain in the right costovertebral angle for many years and the complaint that his "urine all leaked out on his abdomen." Physical examination revealed an extremely emaciated man who appeared much older than the stated age. General physical findings were not remarkable except for extrophy of the bladder, separation of the symphysis, and an epispadias. Purulent material could be seen exuding from the right ureteral orifice. Urologic examination revealed that the right kidney was non-functioning and contained many stones, and

a diagnosis of non-functioning calculus pyonephrosis on the right side was made. On the left side, some evidence of minimal dilatation of the lower left ureter and some blunting of the calices were found. Urine cultures obtained from the left side revealed *Aerobacter aerogenes*. The laboratory findings otherwise were essentially normal.

A mucosa-to-mucosa anastomosis of the left ureter to the rectosigmoid was carried out, and the post-operative course was uneventful. For two days following the operation, the patient's temperature was elevated to 100.4 F., then returned to normal and remained so thereafter. An intravenous pyelogram made 14 days after the operation (fig. 3) revealed excellent function on the left side, without any dilation or distortion of the upper tract. It is generally agreed that if any dilatation of the ureter occurs following a ureteral transplant, it is much more marked for the first few months, with improvement at the end of six months. It has been found that in many patients who have a hydronephrosis for the first few months after operation, the dilatation tends to return to normal after six months. In about two weeks following this operation, a nephrectomy was done on the right side, followed by a normal convalescence. The patient was discharged from the hospital in good condition.

This patient was followed for two years and nine months, during which time no episode of pyelonephritis occurred and his blood chemistry remained normal. About two years and nine months following the ureteral transplant, he entered another hospital and died of causes which were unrelated to his urinary tract. At autopsy the ureter and kidney revealed no more dilatation than was apparent on the preoperative roentgenograms. Moreover, as can be seen from the photomicrograph of a section of the kidney (fig 4), there was no evidence of pyelonephritis.



Figure 5 (Case 3)

Comment: The autopsy findings offer convincing evidence as to the efficacy of a mucosa-to-mucosa transplant. The patient lived for two years and nine months without pyelonephritis, and at the time of death the microscopic sections failed to reveal any evidence of pyelonephritis of the only kidney.

Case 3

A 71 year old white man was admitted to the hospital with a diagnosis of inoperable carcinoma of the bladder. On admission he was markedly emaciated, and stated: "I am up all night, trying to urinate, and I pass a lot of blood." Urography showed the upper urinary tract to be normal, however; and, inasmuch as the patient was having intractable pain which required large doses of opiates, and had to sleep with a urinal in the bed because of frequency and gross hematuria, it was decided to do a palliative ureteral transplant. This operation was carried out, and both ureters were transplanted simultaneously. The postoperative course was uneventful except for the beginning of a wound disruption on the seventh postoperative day, which was resutured. The patient's temperature never rose above 101 F., and on only one day did it rise this high. As can be seen from the urograms (fig. 5) which were made 16 days following the bilateral ureteral transplants, the patient had good function on both sides, with no dilatation or distortion of the upper tract. He remained in the hospital about 19 days following the operation.

For seven months this patient was able to enjoy a perfectly comfortable life, after which auricular fibrillation and cardiac decompensation developed, from which he recovered after a hospital stay of two weeks. In about nine months following the operation he died of coronary occlusion. Autopsy studies revealed no damage from poor urinary drainage.

Comment: It is our feeling that if one can give a 71-year old man nine months of comfort, this operation is justified. This belief is shared by many others at the present time. Flocks recently stated that "Ureteral transplants as a procedure for palliation is assuming greater and greater importance."⁽³⁾

Crane⁽⁴⁾ recently published an article emphasizing the use of this procedure in cases of inoperable carcinoma purely for palliation.

Case 4

A white man, 55 years of age, was admitted to the hospital with a history of gross hematuria for about six to eight months, and some pain in the suprapubic region. On physical examination his general condition appeared to be good. Urologic examination revealed both kidneys to be normal. Cystoscopy revealed a diverticulum in the region of the right side of the bladder, with what appeared to be a tumor protruding from the mouth. Examination of a biopsy

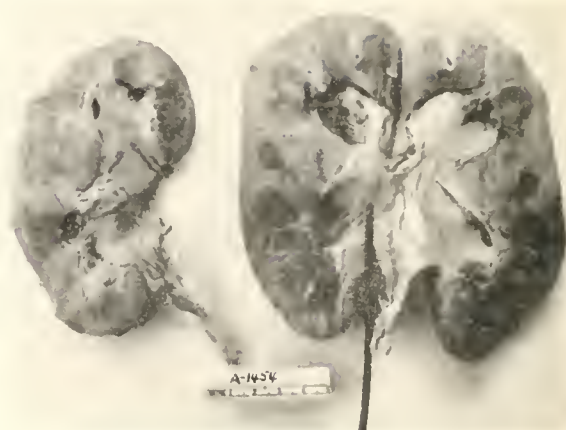


Figure 6

specimen proved this to be an infiltrating carcinoma of the bladder, of either a stratified squamous type or transitional cell type, and apparently containing some elements of both. A cystogram disclosed that the carcinoma was in the diverticulum (fig. 7).

It was decided to perform a bilateral ureteral transplant with cystectomy. The transplant was carried out according to the mucosa-to-mucosa technique of Cordonnier. The patient's postoperative course was uneventful, with only a low grade fever for two days following the operation. An intravenous urogram made 12 days after the operation (fig. 8) revealed both kidneys to be functioning well, with no dilatation or distortion of the collecting system. Three weeks after the ureters were transplanted, a cystectomy was done. At this point we decided that the case was inoperable, but since we were already committed, the operation was carried out. Examination of the specimen showed a large tumor in the diverticulum (fig. 9). Following this procedure, the patient got along very well, and was discharged from the hospital.

About two and one half months after the cystectomy he was brought back to the hospital because of edema of the lower extremities. At this time it was obvious that he had widespread metastasis to the lung and the liver, and he finally died from what appeared to be liver failure.

Comment: This case obviously illustrates a mistake in judgment as to the operability of carcinoma of the bladder. The decision was difficult to make prior to operation because of the fact that the tumor was in a diverticulum. In such cases it is not possible to tell by bimanual palpation just how extensive the tumor is, and there is always an associated infection in the diverticulum which makes the pre-operative diagnosis more difficult. Although this patient should not have had a cystectomy, the case illustrates a successful ureteral transplant by the mucosa-to-mucosa method, as is shown in the pyelograms.

Case 5

A 43 year old white man was admitted to the hospital with a history of frequent and painful urination for 10 years, which had prevented him from working. He was wearing a urinal (fig. 10). He had been drinking rather large quantities of whiskey and taking all the pain-relieving pills that he could get, both with and without a prescription, and every patent medicine which had any pain-relieving qualities. Examination revealed an emaciated white man, 43 years of age, with marked emphysema of the

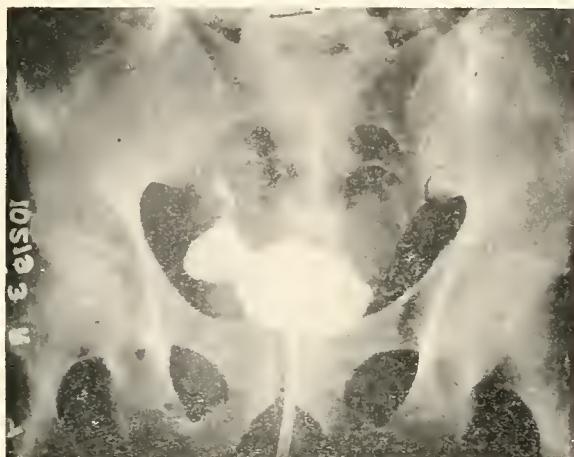


Figure 7 (Case 4)



Figure 8 (Case 4)

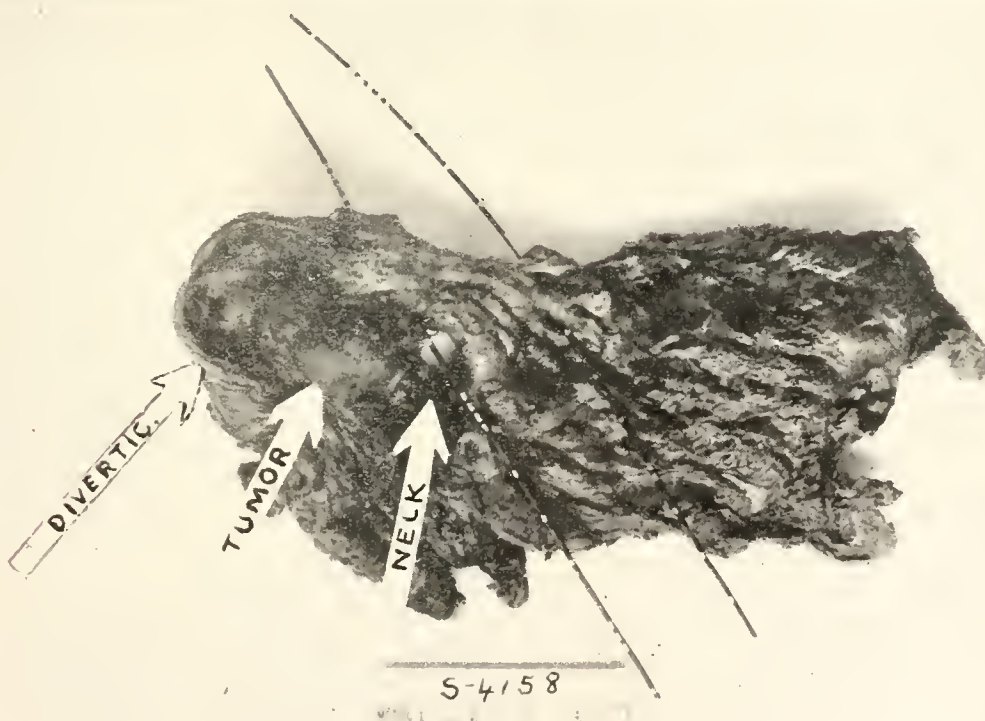


Figure 9 (Case 4)



Figure 10 (Case 5)



Figure 11 (Case 5)

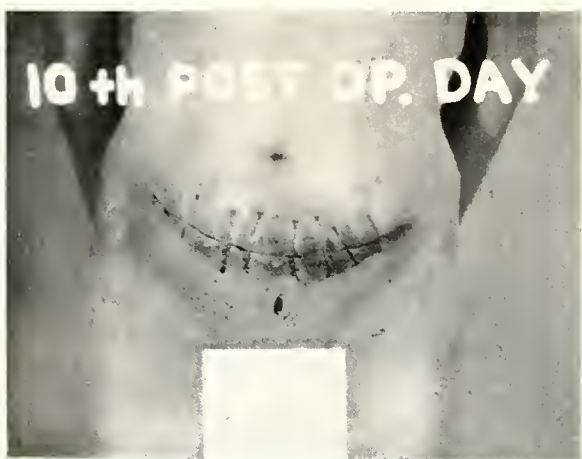


Figure 12 (Case 5)

lungs. Otherwise the physical examination was not remarkable. Laboratory findings were within normal limits.

A urologic examination revealed both lower ureters to be markedly dilated (fig. 11), and his bladder to have a capacity of only 30 cc. It was virtually impossible to perform a cystoscopy because of this limited capacity, but a tentative diagnosis of interstitial cystitis with marked diminution of bladder capacity was made. It was decided to do a bilateral mucosa-to-mucosa ureteral transplant, using a transverse incision (fig. 12), and the postoperative course was entirely uneventful. For the first day following



Figure 14 (Case 5)

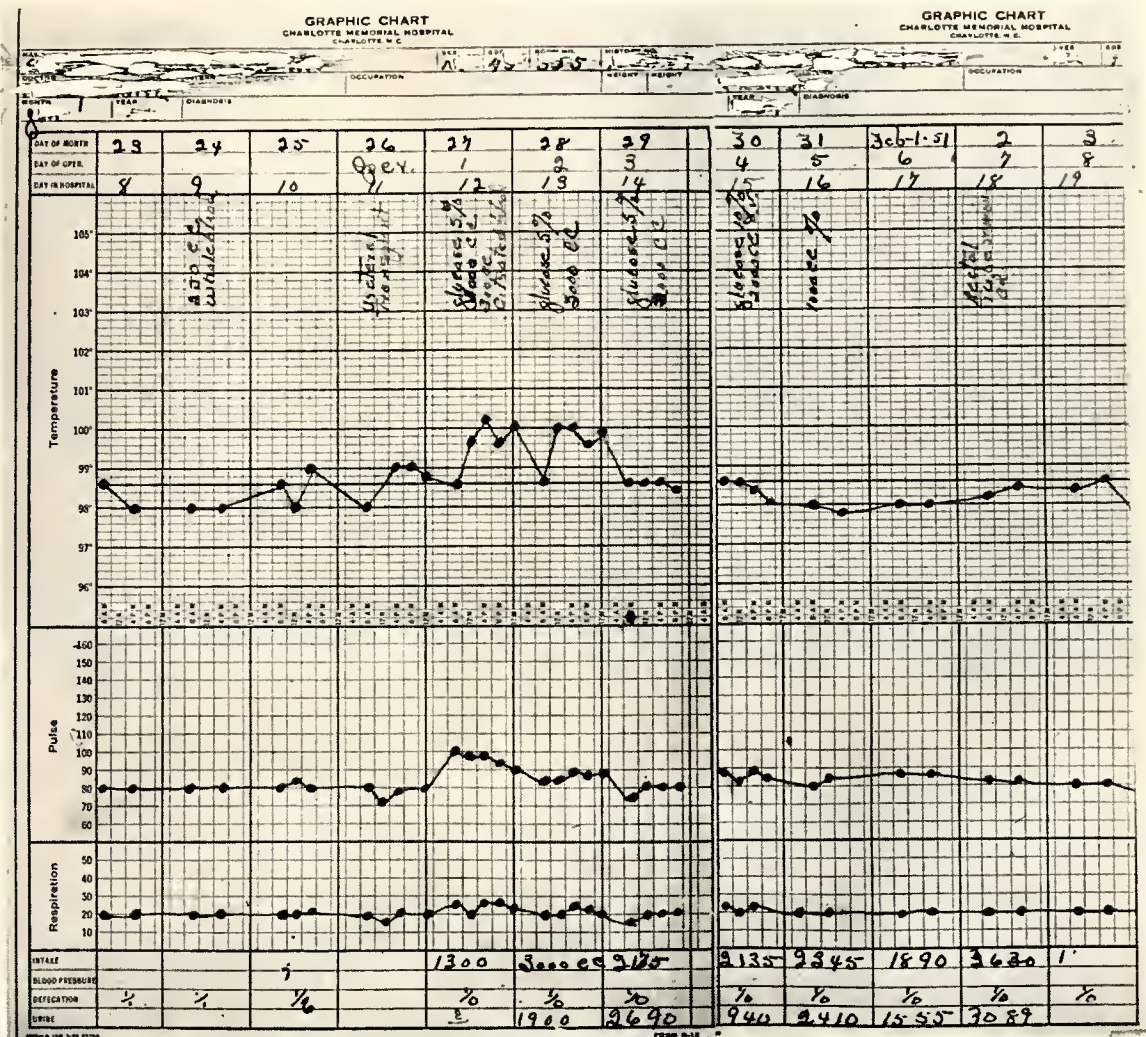


Figure 13 (Case 5)

the operation, the patient had a temperature of 100.1 F., which returned to normal the second day and remained normal thereafter (fig. 13). A section was taken from each ureter for histologic examination, and the findings of Dr. Paul Kimmelstiel, pathologist, were reported as follows: "Partially dilated ureters with extreme edema and fibrosis of the submucosa. Very mild ureteritis, nonspecific."

An intravenous urogram done 10 days following the operation (fig. 14) revealed both kidneys to be functioning normally, with no dilatation or distortion of the upper urinary tract. The patient was discharged from the hospital on the twelfth post-operative day, and has made an entirely uneventful convalescence. In about six weeks following the operation he was working at the regular job he had held prior to 10 years ago, and he is now doing well. He gets up about once during the night to urinate, or rather to empty his lower colon, and there has been no evidence of pyelonephritis since the operation. The blood chemistry has remained nor-

mal. Furthermore, the absence of pain has enabled him to gain weight and lead a normal life.

Case 6

A 58 year old Negro man was admitted to the hospital with a diagnosis of inoperable carcinoma of the bladder. General examination revealed a well developed Negro man, with a history of intermittent gross hematuria for about a year and a half. The physical examination was negative except for a firm, hard mass occupying the region of the bladder and the prostate, which was felt on rectal examination. Urologic examination revealed a fungating carcinoma filling about a third of the bladder, which on histologic examination was found to be grade four. The patient had undergone an autonephrectomy on the left side, because the carcinoma had cut off the ureter as it entered the bladder. Blood studies revealed that the nonprotein nitrogen was elevated to about 50 mg. per 100 cc. A urogram (fig. 15) disclosed a grade two hydronephrosis on the right side.



Figure 15 (Case 6)

It was decided to perform a palliative ureteral transplant on the right side, and to do nothing on the left side because of the previous autonephrectomy. A mucosa-to-mucosa ureteral transplant was carried out on the right, and at the time of operation a large carcinomatous mass was noted in the region of the bladder and prostate, extending up around the lower left ureter.

The patient's postoperative course was entirely uneventful. The temperature chart (fig. 16) shows that he never had an elevation above 100.4 F. There was no gastric distension, and the patient was out of bed on the third postoperative day. A urogram made 11 days after the transplant (fig. 15) disclosed no progression of the hydronephrosis. In the meantime, his nonprotein nitrogen had returned to 38 mg. per 100 cc. He was discharged from the hospital, feeling well, two weeks after the operation.

Comment: We believe that in a case of this type, in which the patient is bed-ridden and in constant pain, with bloody urine draining from him constantly, one is justified in trying some surgical procedure for relief, rather than relying on narcotics.

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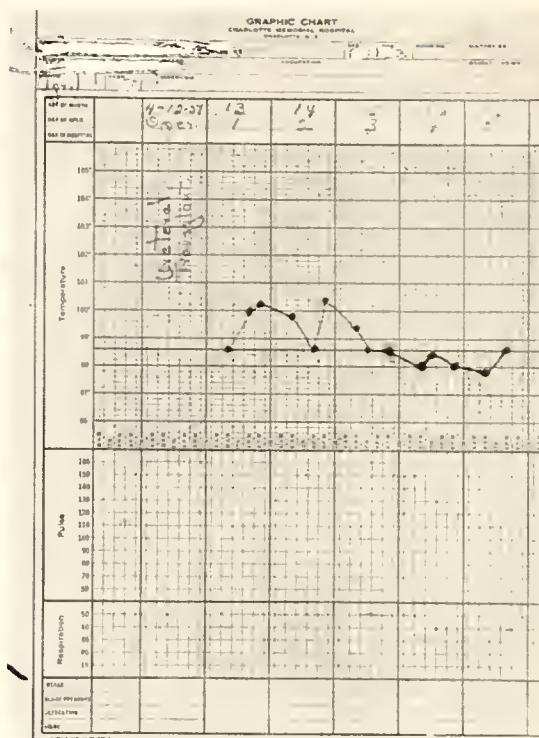


Figure 16 (Case 6)

Qualifications of a Surgeon: In general the successful surgeon should possess robust health, energy, and ability to make decisions under circumstances of stress. A measure of philosophic doubt is desirable together with a critical faculty which extends its operation to his own actions. I think a certain degree of optimism is an asset if a man is to remain undismayed and not discouraged by the occasional but inevitable failures in his work. Some seem to have developed an intuitive judgment—perhaps a natural endowment but also supported by the fruits of observation and criticism of past results. Joseph Conrad, in a generalization, gives, I think, a good picture of what is in my mind. "I don't mean the courage of self-assertion, either moral or physical, but the mere way of it, the trick of the thing, the readiness of mind and the turn of the hand that come without reflection and lead the man to excellence in life, in art, in crime, in virtue, and for the matter of that even in love."—Sir Max Page: *Surgery, Brit. M. J.* 2:437 (Aug. 25) 1951.

Courage: I have never got over my wonder at the way patients "take their medicine" in the bitterest sense of that word—their matter-of-fact acceptance of the disability and frustration caused by illness, and their bearing under pain. What has been publicized in regard to the courage of the wounded soldier in wartime is witnessed by us in everyday practice without comment.—Sir John Parkinson: *The Patient and the Physician, Ann. Int. Med.* 35: 310 (Aug.) 1951.

ALLERGIC MANIFESTATIONS IN OTOLARYNGOLOGY

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ASHEVILLE

Perhaps no field of medicine or surgery is so concerned with allergic conditions as otolaryngology, if one considers the huge number of otologic, rhinologic, and laryngologic disturbances which have an allergic foundation. It is evident that our hereditary background, environment, present manner of living, mental stresses and worries, and various occupational efforts play an ever present part in the reaction of the organism.

Allergy denotes an altered reaction of the tissue in certain individuals on exposure to agents which, in similar amounts, are innocuous to other people.

The modern history of clinical allergy began with a discussion of hay fever by Bostic in 1819⁽¹⁾, and later by John Elliotson⁽²⁾ in England, who suggested that hay fever is caused by the pollen of grasses, and who also pointed out that nasal symptoms and asthma may be caused by animal emanations. In 1873, Blackely⁽³⁾ performed the first skin tests for sensitivity to grasses. Allergy of the nose and paranasal sinuses was described as a catarrhal disease by Bosworth⁽⁴⁾ in 1896. Nasal allergy, vasomotor rhinitis, was suggested by Langlois⁽⁵⁾ in 1906, Billiard⁽⁶⁾ in 1910, and Percipied⁽⁷⁾ in 1912. Goodale⁽⁸⁾, in 1916, was the first to confirm these reports.

The clinical aspects of allergy in relation to otolaryngology has made its most rapid strides in the last 30 years. Many surgical operations which have been devised and brilliantly executed for the correction of the underlying pathologic conditions in the head have left much to be desired in clinical end results, both to the surgeon and to the patient. The advent of antibacterials, such as the sulfonamides and antibiotics, in the treatment of infections about the head, has disclosed that conditions other than the infections are at work: such as an altered tissue reaction to an exogenous, endogenous, physical, or psychosomatic sources.

Pathology

Recent observations of Kline⁽⁹⁾ show that

allergic reactions are characterized by a rapid onset, a violent course, and a slow regression. The true reactions are variable and range from no alteration to inflammatory, proliferative, degenerative, and necrotic changes.

In the mucous membrane, the mucosa is boggy and either pale, as though covered by skim milk,—or pink, showing epithelial discoloration. Edema and polyposis may be present. Nearly a third of the patients with allergic rhinitis or perennial asthma have mucous polyps.

Steinberg⁽¹⁰⁾, in his summary of histopathologic changes in the mucous membrane of the respiratory tract and accessory nasal sinuses, describes hypertrophy, increased secretory activity of the mucous glands, large amounts of mucus in the lumina, eosinophilia (in 15 to 90 per cent of all the cells), edema of the tissue, thickening and hyalinization of the basement membrane, with hyperplasia of goblet cells. The polypi are loose, with a jelly-like structure of the stroma and tunica propria, distended with serum, and two or more may coalesce, forming cysts. The edema of the mucous membrane may prolapse and form pedunculated polyps.

The microscopic picture shows numerous mononuclear cells, plasma cells, lymphocytes and, as a rule, eosinophilia. The absence of eosinophils does not rule out allergy, as a superimposed bacterial infection will result in a neutrophilic infiltration which later may go on to form connective tissue and fibrosis.

Kline and Young⁽¹¹⁾, in 1935, stated that tissue changes in allergy may be reversible or irreversible in type. In seasonal hay fever, repeated acute attacks as a rule are reversible. In long continued attacks, as in the perennial type of allergy, the reaction of the tissue is often proliferative and degenerative, and, though it may be partly reversible, is for the most part irreversible in character.

Allergy of the Ear

Allergy may involve the auricle, the external ear, the middle ear, the labyrinth, the cochlea, and the eustachian tube. Allergic otitis externa is a dermatitis characterized by hyperemia, with inflammation, edema, and pruritus. In severe cases, there may be blister formations. In the chronic types, eczematoid changes may occur, with thickening and scaling of the skin. The lesions may be exudative or nonexudative.

Read before the Section on Ophthalmology and Laryngology, Medical Society of the State of North Carolina, Pinehurst, May 8, 1951.

The external ear

In infants, these eczematous types of lesions may appear on the external ear and postauricular areas, and may be a manifestation of contact dermatitis due to the localized sensitization to the various medications or foods. The most frequent offenders are the sulfonamides, penicillin, mercurial preparations, baby oil, nail polish, wave set lotions, spectacle frames; and in infants, the simple foods in the diet such as eggs, chocolate, wheat flour, the disaccharides, and the various starches.

Lesions of the external canal are usually due to contacts, and most frequently are complicated by bacterial or fungus infections. Such lesions may disappear when the contactant or offending food is eliminated.

The middle ear

In 1929, Lewis⁽¹²⁾ reported 6 cases in which allergy was noted as a cause of an acute process in the middle ear; followed in 1931 by Proetz⁽¹³⁾, who reported 10 cases of the same type. He noted instances of acute processes caused by food allergy in artificially fed infants and children under 5 years of age. Shambaugh⁽¹⁴⁾, in a series of 100 cases of chronic otitis, noted eosinophilia in 2. Albrecht⁽¹⁵⁾ has found that 86 per cent of the cases of chronic otitis were in children who had been bottle fed, indicating, one must think, milk sensitivity in these cases. He expounded the theory that these patients were locally sensitized by regurgitating the foreign protein of milk through the eustachian tube into the middle ear. Dohlman⁽¹⁵⁾ noted that certain conditions were associated with other allergic symptoms such as asthma and gastrointestinal disturbances. He confirmed Albrecht's theory, especially in regard to children who were congenitally predisposed to allergic diseases, and in those who were bottle fed.

Kuhn⁽¹⁶⁾ outlined principal complaints of middle ear involvement, marked by fullness in one or both ears; deafness or dullness of hearing, frequently of the type combining high and low frequency, but principally of high frequency; dullness, deep-seated pain, with itching between the nose and the ear; and a burning sensation in the ear. This condition may be associated with fever, allergic rhinitis, and catarrhal serous otitis.

The serous otitis, provided there is no pre-existing nerve deafness, is of the con-

ductive type. The drum membrane shows a loss of luster and is usually retracted, but may lose its markings from the collection of fluid and edema of the middle ear cavity. In the later stages of the disease the small vessels of the tympanum may be dilated, a meniscus, or a fluid line, and an amber discoloration may be seen. In both stages, abnormalities may be absent if the drum is not translucent and thickened.

In this type of case Hoople advises auscultation while inflating the ear with an eustachian catheter. If this is done, one frequently hears the gurgle of the air bubbles entering the middle ear, suggesting the presence of fluid. If in doubt, a diagnostic paracentesis should be done, and the resulting fluid examined for cytologic abnormalities.

The internal ear

Allergies affecting the inner ear present unilateral and bilateral hearing defects, which may be of the nerve type or conductive type of deafness, associated with tinnitus, vertigo, and clicking noises, especially when talking or swallowing.

Endolymphatic hydrops may be the result of intrinsic or physical allergies. Allergies of the cochlea and labyrinth frequently show the triad of a Meniere's syndrome—vertigo, tinnitus, and deafness. Due to the work of Hallpike and Cairns in England, and John Lindsay of Chicago, pathologic specimens examined and described show dilation of the endolymphatic system, with degenerative changes in the sensory element of the inner ear, in the absence of inflammatory changes. Frequently Meniere's syndrome is associated with other allergic manifestations such as myalgia, neuralgia, and sensitivity to food contactants and inhalants. Evidence (in the literature) indicating that Meniere's syndrome may be allergic in origin, is accumulating rapidly.

Kuhn⁽¹⁶⁾, in a recent article, suggests that in cases involving the middle or internal ear a hearing test should be given and the audiogram repeated 20 minutes after a hyperdermic injection of one-half the therapeutic dose of epinephrine. If there is a change in the hearing and a subjective change in the feeling of the patient's ear, we can consider the allergic influence to be important enough to warrant investigation from an allergic standpoint. Positive nasal secretions that show an eosinophilia or a blood eosinophilia may be considered confirmatory.

Allergies of the Nose and Sinuses

In mild cases a tickling sensation in the nose may be the only symptom. In severe forms there may be itching, lacrimation, photophobia and itching of the eyes, ears, roof of the mouth, and the pharynx, accompanied by sneezing and nasal obstruction. The attack usually begins with profuse watering, anterior nasal secretions which later become mucoid but remain clear, resulting in frequent rubbing of the nose and excoriation about the alae. In long standing cases, the discharge may become mucopurulent and drain backward on to the posterior pharyngeal wall, giving the posterior tips of the turbinate a mulberry appearance, with hyperplasia of the islands of lymphoid tissue in the postpharyngeal wall and Waldeyer's ring, and thickening of the lateral bands of the pharynx. The septal mucosa is usually hypertrophied, and there may be a loss of the sense of smell and an alteration in taste.

Some patients complain only of postnasal discharge and a feeling of stuffiness in the nose. In children, persistent allergic bronchitis, frequently leading to asthma, may be the sole manifestation. In severe cases, there may be constant discomfort through the day and night, but the majority show daily periodic variations. Nasal blocking is more pronounced during the night, whereas the other symptoms become more pronounced on arising.

Patients with perennial rhinitis may show a sensitivity to seasonal excitants, including molds, foods, pollens, occupational dust, and fatigue.

Chronic sinusitis

Shambaugh⁽¹⁷⁾ states that no more than one fourth of all cases of chronic suppurative sinusitis are of the anaerobic, nonallergic type. The great majority have an allergic basis in which chronic allergy of the nasal sinus mucosa is complicated by a superimposed infection. These are the cases that have caused nasal and sinus surgery to fall into a degree of disrepute, for as long as the underlying allergy is not suspected and likewise not controlled, recurrence of infections is frequent, despite the most complete and radical surgery.

The symptoms of an allergic chronic sinusitis are unusually severe and out of proportion to the virulence of the infection:

the nasal blocking, accompanied by a profuse mucopurulent nasal and postnasal discharge; irritable cough, productive or non-productive, with wheezing; intense headaches out of proportion to the general findings in the nose; and chronic fatigue. These patients would readily submit to radical surgery in an attempt to get permanent relief.

The physical findings and roentgen examination of the sinuses usually indicate bilateral pansinusitis and a thickening of the mucosa. These findings may vary on repeated examinations.

In cases of chronic allergic sinusitis where allergy is unrecognized and untreated, recurrences are the rule. Where the allergy is controlled, the prognosis is much better. The allergic individual will always be allergic and may be thrown out of allergic balance by fatigue, undue exposure to allergenic substances, or by infection.

Tonsillectomy and respiratory allergy

The close similarity of the symptoms of respiratory allergy to those of head colds, bronchitis, and sinusitis is ever present and confusing in a differential diagnosis. Many times, in repeated upper respiratory involvement, the removal of tonsils and adenoids is advised. In an analysis of 341 cases of respiratory allergy in children⁽¹⁸⁾, it was revealed that a consideration of tonsillectomy was frequently the primary factor. It is felt that many patients with respiratory allergy, especially the perennial type, are subjected to tonsillectomy and adenoidectomy without recognition of the primary allergic manifestations. So often tonsillectomy is performed to relieve the symptoms of allergy, which are considered to be primarily of infectious origin.

Hansel studied 200 cases of respiratory allergy. One hundred and four of the patients were male and 96 female. The ages varied from 3 to 16 years. Twenty-six proved to have nasal allergy, an incidence of 13 per cent. Of the positive cases, the nasal symptoms were typical in only 13 instances.

Early respiratory allergy, manifested in frequent headaches and bronchitis, should be recognized. The removal of tonsils and adenoids for the relief of such symptoms should not be recommended.

Headache

On account of edema of the brain, the allergic type of headache is likely to be gen-

eralized rather than localized. When localized, it is usually confined to one or more of the sinuses, and is caused by pressure and obstruction to drainage produced by the allergic edema. Headache is usually associated with other manifestations of allergy, and is most frequently caused by sensitivity to food.

Typical and atypical histamine cephalalgias, on account of the localization over the frontal and maxillary sinuses, are usually on one side, and, because of the associated nasal discharge and obstruction, must be differentiated from allergy and acute or chronic sinusitis. With the inclusion of migraine and tension headaches, practically all the cases observed by the otolaryngologist fall into these four groups⁽¹⁹⁾.

Involvement of the Salivary Glands

Recurring attacks of parotitis⁽²⁰⁾ or involvement of any of the salivary glands is often confused with mumps. Many of these cases may involve only one gland or multiple glands, and the swelling may be of short duration. Fever is usually absent. Pain is aggravated by movement of the jaw. The expression of the mucous plug from the duct often relieves this condition, which is believed by some workers to be due to a localized allergic reaction of the salivary gland.

Deafness

Deafness in children may be the result of edema of the eustachian tube, causing serous otitis of allergic origin. Crowe and Wazl⁽²¹⁾ have obtained good results with irradiation, whereas Hansel⁽²²⁾ states that, regardless of the effect of radium on the lymphoid tissue, there is likely to be improvement of hearing, at least temporarily, as a result of the nonspecific effect of radiation on the allergic process. It is needless to emphasize, therefore, the importance of the recognition or exclusion of allergy as a factor in these cases.

Angioneurotic Edema and Serum Diseases

With the most recent accessories or the indiscriminate use of the antibacterials, including the sulfonamides and the antibiotics, the endocrine products, liver extracts, insulin, and other injectibles, the otolaryngologist should be concerned with the possible occurrence of a delayed or serum disease type of reaction which may appear from seven to ten days following the administration of these drugs. Patients to whom these

drugs are administered should be warned of this possibility.

Nerve paralysis⁽²³⁾ as a complication of serum disease should be borne in mind. Reports in the literature have called attention to paralysis of one of the cranial nerves, especially involving the motor fibers. Those principally involved are the facial, the auditory, and the recurrent laryngeal nerves.

Other Manifestations of Allergy

Other manifestations of allergy are frequently present and must be considered in the management of the patient. A carefully taken history often elicits information relative to allergic bronchitis, bronchial asthma, urogenital allergy, gastrointestinal allergy, allergic headaches, and skin manifestations, such as contact dermatitis, eczema, purpura, urticaria, and angioneurotic edema.

History-Taking

In taking the history, one should record the most prominent symptoms, the date and time of year of onset, precipitating factors, the frequency and duration of the attack, and the months of the year in which these attacks occur. The latter is particularly important in cases of pollen allergy, as the tree season is in early spring, the grass season in late spring and early summer, the ragweed season in late summer and early fall, and the dust season in late fall and winter, especially when the heat is turned on. Airborne fungi are more prevalent in wet weather, from April to November.

The severity of the attack, whether it occurs when the patient is at home or at work, what relieves it, the freedom from symptoms between attacks, whether partial or complete, and other allergic symptoms such as hay fever and asthma, perennial rhinitis and urticaria, are important factors. The past medical history in relation to the development of allergic manifestations is likewise important. Recurrent bronchitis may follow one of the acute eczematous diseases, or asthma may follow tonsillectomy at the height of the pollen season. A positive family history should intensify the search for an allergic cause.

Identification of the allergens

The search for the allergens should begin with the *inhalents*. Among the possibilities to be considered are floor covering, furniture, contacts with animals, dust, feed or

fertilizer, and insecticides (used indoors or out), the location of the house, whether damp or dry, the heating system, and exposure to soaps, perfumes and cosmetics which may act as inhalants as well as contactants.

Any food which the patient thinks will produce his complaint should be recorded, and also any food that is intensely disliked. Food and diet must be considered in relation to itching of the palate, gas, canker sores, nausea and vomiting, constipation, or mucus in the stool. In some cases, a food diary must be kept in the search for the offending allergen. Information on the use of drugs such as laxatives, nose drops, analgesics, and hypnotics may be significant. Aspirin, phenolphthalein, belladonna, and mineral oil are frequent offenders.

Allergens causing a contact dermatitis, such as poison ivy, garden flowers, vegetables and fruits, paints and sprays, furniture polish, waxes, soap, washing powder, cosmetics, lotions, wave sets, disinfectants, silk, and wool are some of the most common offenders.

Cytologic Study of Smears

Hansel's technique^(2,4)

1. Collect secretion by having the patient blow nose on waxed paper.

2. Transfer secretion to slide—tease out with toothpick so as to avoid thick masses. Make two or three smears if there is enough material.

3. Dry smears in air or gently over flame.

4. Mark across slide next to level with paraffin stick to prevent overflow.

5. Cover completely with stain and allow to stand 30 to 45 seconds, allowing the longer period for thick or milky smears.

6. Add distilled water to take up stain, as in Wright's technique, and allow to stand about 30 seconds. For best results neutralize the distilled water by adding 1 drop of 1 per cent potassium carbonate to each 30 cc.

7. Pour off stain and flood slide with distilled water to remove excess stain.

8. Flood slide with 95 per cent ethyl alcohol. Drain off and dry slide over flame.

9. If the blue color is too intense, flood slide with 95 per cent ethyl alcohol to which 1 drop of 1 per cent hydrochloric acid has been added to 30 cc. The amount of blue color removed depends on the length of time the acid alcohol is allowed to remain on the slide.

10. Pour off the acid alcohol and then flood with plain 95 per cent ethyl alcohol again.

11. Always examine the stained smear under the microscope before using the acid alcohol solution. The acid treatment *intensifies the red in the eosinophils by removing overlying blue*. Too much acid may take the blue out of the neutrophils and give them a pink color. If the neutrophils are pink upon the first examination, stain another specimen and allow about 15 to 20 seconds longer for the stain to act before adding the water.

12. In examining smears, the magnification must be 125 to 150. Using a 10 x objective, the eyepiece should be 12.5 or 15 x. Use a moderately strong clear light.

Skin-Testing

The diagnostic skin test consists of introducing a minute quantity of a specific substance (allergen) into the skin by means of a scratch, or an injection^(2,5). If the skin already contains specific allergic antibodies (reagins) to this substance, the allergen immediately unites with the reagins. This union is accompanied by sufficient cellular damage of the skin to liberate histamine-like substances. Histamine causes capillary dilatation and increased permeability, with a wheal surrounded by erythema. The size of the wheal corresponds roughly to the amount of allergen introduced and the amount of reagin in the skin.

A number of factors conspire to make skin testing inaccurate and frequently unreliable for diagnosis.

1. Allergic antibodies may be present in the nose, bronchi, intestinal tract, or localized tissue, but not in the skin, causing the skin test to be "falsely negative."

2. Conversely, allergic antibodies may be present in the skin but not in the nose, bronchi, or intestines, causing the skin test to be "falsely positive."

3. The degree of clinical sensitivity is not necessarily mirrored in the degree of reaction to the skin test.

4. A thick, scarred or sunburned skin will react poorly.

5. The skin testing material may be inert, either through deterioration or improper preparation.

6. If the patient has taken adrenalin or an antihistamine, the skin tests may be falsely negative.

7. Food tests are falsely negative in 20 per cent of cases, as compared to tests with inhalants, which are falsely negative in only about 10 per cent of cases.

As stated above, positive skin tests to inhalants are more significant, as a rule, than positive or negative tests to foods.

If the history does not correspond to the results of the skin tests, as a rule the tests should be disregarded and the patient should be treated in accordance with the history. As a general rule, the rhinologist experienced in allergic diagnosis is able to arrive at a satisfactory diagnosis of the specific allergen with comparatively few skin tests, selected in accordance with the history. Most patients will require no more than 20 to 50 skin tests, and rarely will more than 100 or 150 tests be needed for diagnosis.

Diagnosis

Accurate diagnosis of allergy in otorhinolaryngology involves the careful consideration and correlation of the following points⁽²⁶⁾:

1. *Symptoms*: The typical symptoms of sneezing, itching, nasal discharge, and obstruction are easy to recognize. Atypical cases, however, characterized by stuffiness and postnasal discharge, with little or no sneezing, should not be overlooked. Frequently recurring colds, particularly in children, must be differentiated from allergy.

2. *Nasal changes*: Although the typical allergic mucosa is characterized by pallor, boggy, and sometimes edema or polypoid, there are many instances in which the mucosa appears normal or somewhat reddened.

3. *Cytology of the Secretions*: Nasal secretions and, when available, sinus secretions should be stained and examined microscopically for eosinophils, neutrophils, or both. The cytologic picture is frequently the most important factor in diagnosis. It must be emphasized that the common cold is an ever present complication, and cytologic findings are the most important guide in its recognition.

4. *Roentgen examination of the sinuses*: Varying degrees of cloudiness are the rule rather than the exception in allergic sinuses. Changes may be of short duration and transitory. A cloudy sinus, therefore, does not always indicate infection. Roentgen findings should be correlated with the cytologic picture and bacteriologic cultures.

5. *Bacteriology*: Nasal cultures are unreliable because of contamination. Sinus cultures must be taken under strict aseptic precautions in order to avoid contamination. The findings should be correlated with the cytologic picture, and acute, subacute, and chronic complicating infections should be carefully evaluated.

6. *Histopathology*: All tissues removed from the nose and paranasal sinuses should be examined routinely, and the findings correlated with all the diagnostic factors already enumerated.

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DISEASES OF THE LARYNX: A PHOTOGRAPHIC STUDY

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KINSTON

The development of laryngeal photography has been intimately associated with the discovery of the laryngoscope and the development of both indirect and direct laryngoscopy. Prior to the invention of the laryngoscope, the larynx, for all practical purposes, occupied the status of an internal organ, defying direct visualization as effectively as do the hidden contents of the chest, abdomen, and cranial cavity. The diagnosis of laryngeal disease was of necessity made from symptoms only. The early history of the laryngoscope and its use in the study of laryngeal physiology and pathology have been ably recorded by Mackenzie⁽¹⁾, Wells⁽²⁾, Goldsmith⁽³⁾ and others. The historical facts presented herewith were gleaned for the most part from the writings of these authors.

The Development of Laryngoscopy

Garcia, Turck, and Czermak

Before 1946 credit for the discovery of the laryngoscope was generally given to Manuel Garcia, and priority for its use in medical practice was attributed to Ludwig Turck of Vienna and Johann Czermak of Budapest.

Garcia was not a physician but an eminent teacher of voice, who conceived the idea of studying the action of his own vocal cords and those of his students in order to improve his methods of teaching and to advance the science of voice-teaching in general. In order to accomplish this, he secured from an instrument maker a small mirror fixed to a long stem. His procedure consisted of placing the mirror into his own pharynx or that of his pupil and reflecting the light of the sun's rays into the throat by means of a hand mirror. So far as is known he was the first to practice auto-laryngoscopy. Garcia's observations were limited to the normal larynx, and his paper published in 1855 contained an excellent account of the action of the vocal cords during inspiration, vocalization, and the production of sound in the larynx⁽⁴⁾.

In 1857 Turck secured one of Garcia's mirrors and attempted to study the larynxes of patients in the Allgemeines Krankenhaus of Vienna. However, he did little to improve on Garcia's mirror or methods. In the same year Czermak began to work with one of Turck's laryngeal mirrors, and soon overcame many of the difficulties associated with its use. He substituted artificial light for the uncertain light of the sun, used the large ophthalmoscopic mirror of Ruete to concentrate the light rays, and made mirrors of different sizes. The mirror for reflecting light was held between the teeth by means of a projecting attachment, and it is said that a student of Czermak's, Dr. Semiledder, first suggested fixing it to the forehead by means of a spectacle frame. Turck, in turn, adopted Czermak's methods, and beginning his clinical studies anew, accomplished more in the field of laryngoscopy than did Czermak. The latter, however, received more recognition for his work, since he travelled about Europe demonstrating and propagandizing the new method of studying laryngeal diseases. The first publications of these two authors appeared in the same year one month apart. Unfortunately, a bitter dispute arose between the two men regarding priority in the development of the field of laryngology, and the French Academy of Sciences, being unable to decide the issue, divided the award between them.

Babington's priority

Thus matters stood until 1946, when Wells⁽²⁾ brought forth what appears to be irrefutable evidence that the first person to invent the laryngoscope and use it in medical practice was Benjamin Guy Babington of London. Wells pointed out that similar conclusions regarding Babington's priority had been previously reached by Windsor in 1863, Mackenzie in 1864, Goldsmith in 1924, and Panconcelli-Calzia of Germany in 1935. Mackenzie's publication which had been previously overlooked by historians, constitutes one of the strongest links in the chain of evidence marshalled by Wells in favor of Babington's priority.

According to Wells⁽²⁾, Babington described an instrument for examining the larynx before the Hunterian Society of London, March 18, 1829. An account of his report is to be found in the London Medical Gazette of 1829 (volume 3, page 555).

Read before the Section on Ophthalmology and Otolaryngology, Medical Society of the State of North Carolina, Pinehurst, May 8, 1951.

From the Kinston Clinic, Kinston, North Carolina.



Fig. 1. Normal larynx during phonation.



Fig. 2. Acute cellulitis of the epiglottitis.

"Dr. Babington submitted to the society an ingenious instrument for examination of the parts within the fauces not admitting of inspection by unaided sight. It consisted of an oblong piece of looking glass set in a silver wire with a long shank. The reflecting part is placed against the fauces whilst the tongue is held down by the spatula when the epiglottis and upper part of the larynx become visible in the mirror. A strong light is required and the instrument should be dipped in water, so as to have a film of fluid upon it when used or the halitus of the breath renders it cloudy. The doctor proposed to call it the 'glottiscope.'"

The only contemporary notice of Babington's invention was made in a lecture by Hodgkins at Guy's Hospital, in which he referred to the "ingenious invention of my friend, Dr. Babington, a speculum laryngis, or the laryngoscope." The speculum which formed a part of the first laryngoscope was omitted in later models. Babington devised the laryngoscope while still a medical student, and he subsequently rose to a position of eminence as a physician and scholar.

The previously overlooked medical paper mentioned above was presented by Mackenzie before the Royal Medical and Surgical Society on April 26, 1864. On that occasion he presented instruments designed by Babington which bore the name of the original instrument maker, and produced invoices for their sale. At this meeting a Dr. Streeter testified that Babington had used the laryngeal mirror in medical practice for several years, and Dr. Gibbs stated that he had used it on him personally from 10 to 12 years before (1848-1850).

The Development of Laryngeal Photography

It naturally follows that once the larynx was visualized someone sooner or later would manifest a desire to photograph it. The early history of the development of laryngeal pho-

tography has been well recorded by Clerf⁽⁵⁾ and the more recent history by Holinger⁽⁶⁾.

Early experiments

In 1860 Johann Czermak showed some interest in the problem of photographing the larynx, and later so did Solis-Cohen, Elsberg, French, and others. Czermak and French published papers on the subject, but their results were far from satisfactory. Stein of Frankfort-on-the-Main described a procedure for photographing the larynx in his book on *Light*, but no actual photographs accompanied the description⁽⁷⁾.

In 1883 Lennox Browne presented the first successful photographs of the larynx before the British Medical Association⁽⁷⁾. In this work he had the assistance, among others, of Mr. Emil Behnke, a lecturer on vocal physiology and voice production in London. The photographs consisted of still pictures of Mr. Behnke's larynx during vocalization. No photographs of laryngeal abnormalities were made, and indeed Browne was very pessimistic about the future of laryngeal photography in this respect.

In 1884 Thomas R. French⁽⁸⁾ of Brooklyn read a paper on laryngeal photography before the Section on Laryngology of the International Medical Congress held in Copenhagen, Denmark. He presented two portfolios of excellent still pictures of both normal and diseased larynxes. Portfolio 1 contained 41 photographs of normal and diseased larynxes from 24 subjects, and three photographs of the posterior nares of one subject. The pathologic conditions included chronic catarrhal laryngitis, chronic hypertrophic laryngitis, paralysis of the arytenoid muscle, swelling of the tissues overlying the arytenoid muscle in laryngeal

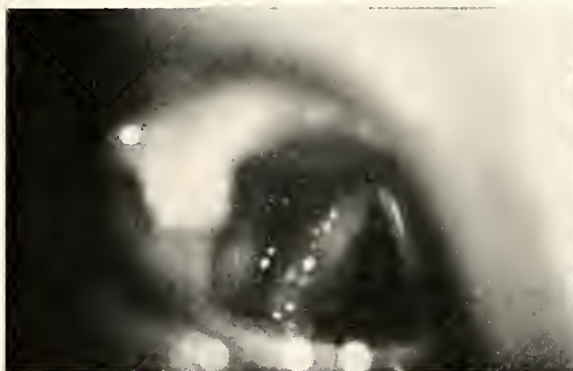


Fig. 3. Tuberculosis of the larynx (vocal cord and epiglottis).



Fig. 4. Small retention cyst on the anterior surface of the epiglottis.

phthisis, and papillomatous growths in the larynx. Portfolio 2 contained four series of photographs showing the positions of the various structures of the larynx in the production of tones in the different registers of voice.

This paper represented the culmination of two years of work in laryngeal photography, in which the author was ably assisted by Mr. George Brainerd, a civil engineer and skilled amateur photographer. About 1500 exposures were made before satisfactory results were obtained. The author used the sun's rays as a source of illumination, and a concave head mirror for reflection of the light. The simplicity of the apparatus is amazing. Later improvements in the technique and apparatus were made⁽⁹⁾. In contrast to Lennox Browne, French was very optimistic about the future of laryngeal photography as a practical means of studying laryngeal pathology.

No further progress was made in photographing the larynx until Garel of Lyons, France, devised an apparatus for making stereoscopic pictures of the larynx. His work was published in 1919, and was a definite contribution to the subject⁽¹⁰⁾. In 1923 Clerf began to use the Garel camera, and presented the results of his work in 1924⁽¹¹⁾. While this method gave the best results that had been obtained up to that time, the difficulties of illumination with the available materials were so great that Clerf was forced to abandon this line of approach as impracticable.

Rapid advances

In the following 10 years the introduction of the small motion picture camera, the development of faster films, the manufacture

of more compact and more powerful electric light bulbs, and the introduction of color film paved the way for faster progress in laryngeal photography. Black and white film gave satisfactory results in depicting motility of the larynx, but the later use of color film aided immeasurably in revealing pathologic changes in the larynx.

Up to 1930 no successful movies of the larynx had been reported. In that year Russell and Tuttle⁽¹²⁾ presented small colored pictures of the normal larynx in motion, which they obtained by an apparatus of their own device, the "fonofarynskop." The authors stated that while previous attempts to make moving pictures of the larynx had been made by others, the results were only partially successful, the most noteworthy being those of Calzia and Hegener.

In 1931 Heatley⁽¹³⁾ reported on cinematographic studies of the normal and diseased larynx secured by direct laryngoscopy using a quartz rod as the source of illumination. This was the first recorded attempt to photograph the larynx by direct laryngoscopic procedure. The results were commendable, but there was inadequate illumination to secure clear definition and focal depth.

About 1922 LeJeune experimented with the Garel camera, but abandoned the method as impracticable. In 1933, having been stimulated by the previous efforts of Lynch in the field of laryngeal photography, he presented moving pictures of the larynx made with the suspension apparatus⁽¹⁴⁾. In 1936 he reported on further observations and the use of color film in depicting laryngeal lesions⁽¹⁵⁾. His contributions to the subject made him preeminent as a pioneer in laryn-



Fig. 5. Inflammatory polyp of the vocal cord.

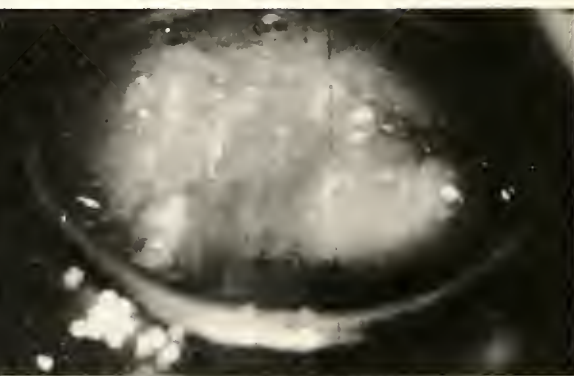


Fig. 6. Ulcerative carcinoma of the epiglottitis, with marked inflammatory reaction of the vallecula.



Fig. 7. Bilateral paralysis of the vocal cords.



Fig. 8. Foreign body (chicken bone) in the larynx.

geal photography, and stimulated interest in both direct and indirect laryngoscopic methods.

Photography by direct and indirect methods

In 1937 Pressman and Hinman⁽¹⁶⁾ presented a simple technique for photographing the larynx by the direct laryngoscopic method. Adequate lighting for color photography was secured by providing the laryngoscope with twin light carriers. This principle of lighting was subsequently modified by others and is now generally accepted for photographing the larynx by direct means.

In 1939 Tucker⁽¹⁷⁾ and Lell⁽¹⁸⁾ presented movies of the larynx made by indirect laryngoscopic method. The larynx was visualized in the customary manner by the laryngologist, and photographed by an assistant who operated the camera independent of the source of illumination. In the same year Soho and Fineberg⁽¹⁹⁾ reported on a simplified apparatus for direct laryngeal photography using 8 mm. film and standard equipment.

In 1940 Lierle and Kent⁽²⁰⁾ reported their results obtained with colored photographs of the larynx using the Lynch suspension apparatus, and in the same year Pressman and Hinman⁽²¹⁾ recorded further advances in their technique of photographing the larynx.

Some of the most instructive films depicting laryngeal physiology ever produced were taken by the indirect laryngoscopic method, with a very high speed motion picture camera developed by the Bell Telephone Laboratories⁽²²⁾. The results of these studies were presented by Farnsworth in 1940⁽²³⁾. Observations on the physiologic sphincter action of the larynx were reported by Pressman in 1941⁽²⁴⁾.

Jackson and Norris⁽²⁵⁾ synchronized laryngeal films with the sound produced to demonstrate the effects of lesions of the larynx on the voice. The results were presented in 1941.

Clerf, with the technical assistance of Mr. J. W. Robbins, devised an apparatus which could be used in the office for photographing

the larynx by mirror laryngoscopy. The light delivered to the larynx by this apparatus was of such a degree as to permit a decrease in the size of the diaphragm opening, thereby increasing the focal depth. The results of their work were reported in 1941⁽⁵⁾. The apparatus has subsequently been improved, and the results obtained with its use are excellent.

The principles underlying photography of the larynx have been well outlined by Clerf⁽⁵⁾. However, the adjustment of the apparatus and the actual process of photographing the larynx can be learned only by experience. It is not an easy technique to acquire, and not every larynx lends itself to photography.

Figures 1 to 8 depict illustrative examples of inflammatory, benign, and malignant diseases of the larynx. A case of foreign body in the larynx has also been included.

Summary

The history of the discovery of the laryngoscope (laryngeal mirror) and the development of the field of laryngeal photography have been reviewed.

It is concluded that photography of the larynx is unexcelled as a medium for teaching and studying laryngeal physiology and pathology.

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ACUTE INTERSTITIAL MYOCARDITIS ASSOCIATED WITH CARCINOMA OF THE BODY OF THE PANCREAS

Report of a Case

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The case presented here is believed to be an instance of acute interstitial myocarditis associated with carcinoma of the body of the pancreas.

Myocarditis

Acute interstitial myocarditis is also known as Fiedler's myocarditis⁽¹⁾, idiopathic myocarditis, and "isolated myocarditis"⁽²⁾. It is classified by Saphir as one of the four general categories of myocarditis⁽³⁾, and is said to be very rare and of an obscure nature, having been found only 43 times in a series of 1,402 cases of myocarditis⁽⁴⁾.

Two types of acute interstitial myocarditis have been described. The more common is the diffuse type, which is characterized by diffuse, inflammatory changes in the cardiac muscle, with infiltrations of lymphocytes, mononuclear cells, eosinophils, plasma cells, and a few neutrophils⁽²⁾. The process tends to produce fibrosis⁽¹⁾. In the less common, granulomatous type, there are small nodules with giant cells and caseation, somewhat resembling tuberculous foci⁽²⁾.

Grossly, acute interstitial myocarditis may show cardiac dilatation⁽⁵⁾.

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The clinical diagnosis is rarely made correctly. Symptoms include precordial pain, fever, tachycardia, diminished systolic blood pressure, cardiac enlargement, systolic murmurs, and heart tones of poor quality. Congestive failure may occur⁽⁶⁾.

The etiology is unknown^(15b). In a few cases the sulfonamides have been implicated⁽⁷⁾. Other possible etiologic agents have included burns and "toxemias." In experimental animals myocardial injury due to the effect of sparteine and epinephrine has been demonstrated⁽²⁾.

Pancreatic Relationship

Cardiac complications of carcinoma of the body of the pancreas have been reported^(5b). Leach mentions the findings of coronary thrombosis in one of his cases of carcinoma of the pancreas; in another of his cases there were "marked myocardial changes," but he does not state whether this was a case of myocarditis⁽⁸⁾.

In examining the recent literature the authors have not encountered any report of acute interstitial myocarditis associated with carcinoma of the body of the pancreas.

Carcinoma of the Body of Pancreas

Carcinoma of the body of the pancreas accounts for about 1 per cent of all deaths from cancer⁽¹⁾. It was encountered 14 times in 14,000 autopsies⁽⁹⁾. These tumors are usually adenocarcinomas, having a gland-like structure or seeming to arise from the ducts; their cells have an anaplastic appearance⁽¹⁾.

It is noteworthy that in carcinoma of the body of the pancreas (including the tail), pain is often an early and important symptom, whereas jaundice does not appear until quite late⁽¹⁰⁾. In one series, pain was the initial complaint in 70 per cent of the cases^(10a). The pain is usually epigastric, and tends to radiate to the right, left, or directly backward^(10, 11c). It is usually dull, aching, and of a boring nature^(9, 10c). Other symptoms include weight loss, weakness, and gastrointestinal disturbances^(10a, b).

Among the symptoms of carcinoma of the body of the pancreas, multiple venous thromboses are a late but unexplained finding. They occurred as a late symptom in about one third of the cases in several series^(1, 10a, 11). The veins involved are said to include especially the subclavian and great saphenous veins, the inferior vena cava, and the iliac, splenic, portal, and mesenteric veins^(11b). Gross, Jaehning, and Coker, in re-

viewing the literature, found that of 56 cases of carcinoma associated with migrating thrombophlebitis, 33 were pancreatic carcinomas⁽¹³⁾.

Although the reason for the high incidence of multiple venous thromboses with carcinoma of the body of the pancreas has not been explained, it has been postulated that these neoplasms may secrete an excessive amount of substance normally produced by the pancreas and involved in the blood-clotting mechanism, or that perhaps they give rise to an abnormal substance which hastens clotting^(11b). It has also been suggested that the increased lipase secretion influences coagulability of the blood by more efficient digestion of fats and absorption of fat-soluble vitamin K^(12a).

Report of Case

A 73 year old man was admitted to the North Carolina Baptist Hospital, December 3, 1949, complaining of exertional dyspnea and epigastric pain.

The patient stated that he had had occasional attacks of "asthma" for several years; however for a number of months prior to admission, he had had increasingly severe exertional dyspnea. This had become so marked that even talking made him short of breath. He had developed a cough which was productive of about half a cup of white, tenacious sputum each day. Nitroglycerine had been used in an attempt to relieve the discomfort.

The epigastric pain had been present for at least 10 years. Originally it had occurred chiefly before meals, and was usually relieved by taking food. About a year before admission, however, it had become more constant, and was no longer relieved by ingestion of food. He had lost 15 pounds of weight in six months. There had been occasional tarry stools for a year or two, but no change in bowel habits. Shortly after the alteration in the character of his epigastric pain had occurred, roentgenograms of the stomach, duodenum, and gallbladder had been made. These had shown no abnormalities.

Eighteen months before admission the patient had received sulfadiazine and penicillin as treatment for urinary tract disease. At that time his blood pressure was 150 systolic and 84 diastolic. An electrocardiogram showed sinus tachycardia, first degree atrioventricular block, left axis deviation, and evidence of myocardial disease.

Physical Examination: On admission the oral temperature was 101 F., the pulse rate was 88, respirations were 20 to 26 per minute, and blood pressure was 106 systolic, 78 diastolic. The patient was a thin, deaf, elderly, white male who appeared chronically ill and apprehensive. His skin was warm, dry, inelastic, and showed evidence of recent weight loss. The retinal arterioles showed moderate sclerosis. The heart tones were of fair quality, but there was a grade II apical systolic murmur. Percussion of the lungs revealed dullness in the left base. There were moist inspiratory rales over the lower two thirds of the right posterior lung field, and over the lower half of the left posterior lung field. Occasional wheezing rhonchi were heard. Vocal and tactile fremitus were normal.

The abdomen was poorly relaxed, and there was tenderness in the epigastrium. The liver was palpable 3 cm. below the right costal margin. No other masses were palpated in the abdomen. Large, par-

tially thrombosed hemorrhoids were present. The remainder of the physical examination was not significant.

Laboratory Findings: The hemoglobin was 14 Gm. per 100 cc., and the leukocyte count was 28,200 per cubic millimeter. Serologic tests for syphilis were negative. The urine showed no significant abnormality. The blood nonprotein nitrogen was 38 mg. per 100 cc.; serum chlorides were 92 milli-equivalents per liter. Sputum culture revealed alpha-hemolytic streptococci, *Neisseria catarrhalis*, and a few beta-hemolytic streptococci.

Roentgen films of the chest were suggestive of diffuse, bilateral bronchopneumonia, but it was stated that the possibility of metastatic carcinoma could not be ruled out. Examination of the large intestine by barium enema showed no significant findings.

Course in Hospital: The patient was given 400,000 units of procaine penicillin intramuscularly on admission, and 300,000 units daily thereafter. He was digitalized with digitoxin. Although fever diminished, the pulse rate increased, and the patient complained of weakness and substernal pain.

On the fourth hospital day, his pulse rate reached 120 per minute, and he became quite dyspneic, presenting a shock-like picture. A transfusion of 500 cc. of group A, Rh negative whole blood was administered intravenously without immediate reaction. The patient was placed in an oxygen tent and was given theophylline with ethylenediamine intravenously. An electrocardiogram was interpreted as being suggestive of myocardial infarction with intramyocardial block.

The next day a second electrocardiogram was interpreted as being suggestive of a posterior infarction of the myocardium. A few hours later the patient suddenly became cyanotic. The blood pressure could not be obtained, and heart tones could not be heard. Respirations were of a rapid, gasping character. The patient was given nikethamide, artificial respiration, and suction, but expired about 10 minutes after onset of the cyanosis.

Autopsy findings

At autopsy, the heart weighed 525 Gm. Its surface was of a uniform dark, reddish-brown color, showing a moderate amount of epicardial fat. All chambers of the heart were filled with postmortem, currant-jelly clots. All four valve rings were dilated, especially the mitral, suggesting valvular incompetency. The aortic cusps showed some thickening and calcification, particularly along their free margin. The coronary ostia were patent. The coronary arteries showed moderate atherosclerosis, with narrowing of their lumina. The coronary vessels, however, were patent throughout. The wall of the left ventricle measured 18 millimeters in diameter, while the wall of the right ventricle measured 6 millimeters in diameter. The cardiac muscle throughout was of a homogeneous, dark reddish-brown color, markedly firm in consistency, and showed no localized gross lesions.

Microscopically, the myocardial fibers were enlarged, and the cells had an increased transverse diameter, with hyperchromatic nuclei which showed squaring of their ends. The capillaries and small arterioles were dilated and filled with erythrocytes. Some of the muscle fibers contained golden and yellowish tan pigment, resembling hemosiderin. In some places, there was degeneration of the myocardium, with replacement by fat. In many areas there were focal infiltrations of lymphocytes and polymorphonuclear leukocytes. The coronary arteries showed no thromboses. It is believed that the cardiac findings are those of acute interstitial myocarditis, with fatty degeneration and infiltration of the myocardium.

The pancreas was enlarged and quite irregular. It weighed 250 Gm. Arising from the body of the pancreas was a very large, firm mass approximately 6.5 cm. in diameter, which had replaced approximately two thirds of the pancreas. Multiple sections made through the pancreas revealed this large, central mass to be a roughened, irregular tumor, which cut with the gritty consistency of an unripe pear, and was grayish white in color. Milky material exuded from its cut surface. Microscopically, the tumor had an alveolar pattern, made up of duct-like structures. The cells were of tall, columnar epithelial type, with hyperchromatic nuclei. There were marked variations in the size, shape, and staining properties of the cells. Some areas appeared quite anaplastic. Portions of the cytoplasm of the cells appeared to be producing mucoid material.

A similar type of tumor tissue was seen in the lungs, liver and spleen, and in the mesenteric, pre-aortic, and regional lymph nodes.

It is probable that the pancreatic carcinoma was the primary lesion and the myocarditis the immediate cause of death.

Comment

It seems quite possible that these two conditions—acute interstitial myocarditis and carcinoma of the body of the pancreas—occurred together fortuitously in this patient. However, one is tempted to speculate whether there was some etiologic association, and whether the recognized tendency of carcinoma of the body of the pancreas to produce multiple thromboses may have played some part.

Pathologically, the picture is one of an inflammatory reaction in the myocardium rather than one of a thrombotic or infarctive process. Careful examination of the heart, both grossly and microscopically, has revealed no evidence of thromboses, either arterial or venous.

If the association is fortuitous, then this is merely an interesting coincidence. If there is a hidden etiologic relationship, however, the presentation of this case may stimulate further interest in this connection and possibly lead to the clarification of other similar unreported cases.

Summary

It is believed that this case represents the occurrence of acute interstitial myocarditis in association with carcinoma of the body of the pancreas. The question is raised as to whether the association of the two conditions is coincidental, or whether there is an etiologic relationship.

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THUMBNAIL SKETCHES OF EMINENT PHYSICIANS

LEGAL DIFFICULTIES OF EARLY NORTH CAROLINA PHYSICIANS

DOROTHY LONG

LEXINGTON, KENTUCKY

Among the early physicians of eastern North Carolina were several whose ideas and practices, progressive for their time, seem to have involved them in legal difficulties. In a description of eighteenth century New Bern, A. T. Dill, Jr.,⁽¹⁾ mentions Dr. Andrew Scott, who was apparently attempting at that time to inoculate patients for smallpox. Dill quotes the court minutes of 1759, the August session, in which a witness was summoned to answer questions "concerning Dr. Andrew Scotts sending to him for some Small Pox Skabbs in a vial." As there are apparently no further references to the matter, one cannot be sure that Dr. Scott did inoculate any patients, though it seems probable.

Almost 40 years later, at Edenton, two other doctors were accused of the same offense. J. B. Cheshire, in *Nonnulla*⁽²⁾, gives extracts from a manuscript copy of a bill of indictment drawn by Blake Baker, attorney, in 1798, to be laid before the grand jury in the Edenton district, in which "the Jurors for the State upon their oath present, that Frederick Ramake, late of the town of Edenton, Practitioner in Physic and Surgery, and John Beasley, late of the same place, also Practitioner in Physic & Surgery, on the fifteenth day of February, in the year of our Lord one thousand seven hundred and ninety-eight . . . at the dwelling house of a certain Wilson Newbern . . . unlawfully and injuriously did uphold, main-

tain and keep a certain house and place for the reception and entertainment of persons laboring under a certain dangerous and infectious distemper called the Small pox . . . and continuously afterwards until the first day of April in the year aforesaid, with force and arms in the County and in the district aforesaid, unlawfully and injuriously did inoculate and cause to be inoculated divers persons . . ." The indictment continues to describe at some length the state of alarm aroused in the people of Edenton, and concludes that the action of the two doctors was "to the great damage, danger & nuisance of the inhabitants of the said Town, & the vicinity thereof, to the evil example of all others in like case so offending, and against the peace and dignity of the State."

No records of any trial were found by Cheshire, so it seems probable that the doctors were not tried, or at least were not convicted of any offense. At any rate, the incident evidently had no effect upon the reputation of one of them, if the Dr. Frederick Ramcke who died in Edenton on July 29, 1800, was the same person as the Dr. Ramake mentioned above, which seems almost certain, despite the slight difference in the spelling of his name in the two accounts. D. L. Corbitt, in the *North Carolina Historical Review*⁽³⁾, has reprinted the obituary of Dr. Ramcke, which appeared in a contemporary periodical, the *Post-Angel, or Universal Entertainment*, of September 10, 1800. This eulogistic account says that the doctor, "by the gentleness and suavity of his manners, his skill and application in the medical art, the friendliness and hospitality of his disposition, justly merited and acquired the affection and esteem of everyone. His death must be regretted as a loss to the public, in being bereaved of the services of a man of unblemished morals, untainted integrity, and singular probity and goodness. He grudged not his trouble in visiting the sick, and his heart was too good to let him see the distress of his fellow creatures, without offering a willing hand to relieve them."

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

MARCH, 1952

SHORTER SCHOOL DAYS FOR THE FIRST GRADE

Twenty years ago the Forsyth County Medical Society was instrumental in having the school day for the first three grades in the Winston-Salem city schools shortened by one to two hours. Since then the first grade has had a four hour day—from 8:30 to 12:30.

Most parents, teachers, children, and physicians have been well pleased with this schedule. Recently, however, the State Department of Public Instruction has been bringing pressure to bear upon the Winston-Salem school authorities to lengthen this day, on the ground that: "During the past few years, there has been a definite trend toward making the primary school day lon-

ger and more informal in nature. The desirable modern first grade program of work is a relaxed one, including work, play, rest, food, and other natural everyday activities of young children. Our present four-hour schedule does not provide for unhurried participation in all of these activities. Some of us believe that our children and teachers are now working under considerable strain and tension and that a little more time would be welcomed."⁽¹⁾

A plain, blunt parent may be pardoned for wondering just how keeping a six year old child in school from five to six hours would relieve his "strain and tension." Certainly the time actually required for his studies is not nearly four hours. Some years ago this journal⁽²⁾ told of a six year old child kept in bed by a long illness whose parents employed a first grade teacher to spend an hour or less each school day during the school year. At the end of the year the child had covered, without special effort, all the work required in the first two grades of the public school. She entered the third grade the next year, and easily kept up with her classes. Since then she has graduated from Duke University with a good record.

Our State Department of Public Instruction should recall the experiment conducted in Richmond in 1928-1929, at the request of a Parent-Teachers' Association.

"A committee was appointed 'consisting of four physicians, two mothers, and one teacher, to investigate the relation of shorter hours to the health of children in the first three grades of school.' Two schools serving virtually the same class of people were used, each furnishing a few more than 250 pupils. In the test group the closing time was 12:30 for the first and second grades, 2:00 for the third grades. In the control group, the closing hours were 1:30 or 1:45 for the first grades, 2:00 for the second grades, and 2:45 for the third grades. The opening time was 9:45 for both groups.

"At the end of the year it was found that the average child in the test group had gained 5.12 pounds, in the control group 3.81. At the beginning of the experiment it was agreed that measles, on account of its highly contagious nature, would not be counted against either group. Exclusive of measles, there were 225 pupil days lost on account of illness in the test group, and 1,677 days in the control group—a 600 per cent greater loss of time in the long-hour group.

"From the standpoint of the school authorities, the experiment was altogether in favor of the short-hour group, which made 18.5 per cent more A's on deportment, had the highest per cent of promotions ever recorded, and scored well above the average of the other schools in the city on standard achievement tests. As for the parents, 88.13 per cent of

them answered the question, 'Do you think the shorter hours are of benefit to your child?' with an unqualified 'Yes.' ⁷⁽³⁾

As a result of the experiment the shorter hours were instituted for the first three grades of all the Richmond schools.

A poll of the pediatricians in Winston-Salem revealed that every one was in favor of keeping the hours as they are now, and felt that to lengthen the day would be a step backward instead of forward. The State Department authorities explain that the children need the extra time in school in order to let them get lunch there instead of at home. The inference to be drawn from this—that the state, rather than the parents, is the natural guardian of the child—might be accepted without question in Russia, but not in North Carolina.

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* * *

THE RED CROSS ANNUAL APPEAL

The 1952 Red Cross fund appeal comes at a time of continuing world-wide crisis that demands a great voluntary effort on the part of everyone, since military strength alone cannot solve the problems created by this crisis.

Many of us take the millions of Red Cross workers and their humanitarian activities for granted—and few of us realize the many things they do in our name each day—tasks of mercy we would perform gladly if we were at hand or if we knew the need.

Each day volunteers in towns and cities throughout the country carry on a staggering program. Blood is collected and made available to the armed forces and to civilian hospitals; able-bodied and hospitalized servicemen and women are assisted in a thousand ways; disaster sufferers receive emergency care and shelter as well as long-term rehabilitation aid.

Through less dramatic programs of service the Red Cross trains nurse's aides, home nurses, and first aiders, all of whom provide a foundation for civil defense—self-help. The Red Cross gives children an opportunity to serve their community, nation, and world—thus preparing them for the responsibilities of citizenship. In the fields of health and safety the Red Cross stands ready

to give instruction, training, and information. Internationally, it helps to make the facilities and advantages of America available to other countries and peoples in need.

The Red Cross has a far-reaching effect upon the life of every American, especially during these uncertain times. Let's do our part to keep the services of the Red Cross geared to meet the needs of the nation and all its citizens. Answer the call of the Red Cross today so that Red Cross can answer the call of Americans tomorrow.

* * *

FLUORIDATION OF WATER SUPPLY

A statement by Dr. Roy Norton, our State Health Officer, in favor of adding fluoride to Raleigh's public water supply was released for publication on February 21. The *New England Journal of Medicine* for February 28 carried an editorial on the same subject. This coincidence illustrates the widespread interest in the subject. It also shows that human nature in a New England Yankee and in a Southerner is pretty much the same, since it is necessary in both sections to overcome prejudice against what some misguided people consider as forcing medical treatment upon a community against the wishes of a few individuals.

Both Dr. Norton and Editor Joe Garland offer convincing arguments as to the value and the harmlessness of adding to the public water supply fluoride in the quantities not exceeding one part per million. The practice has the endorsement of the American Dental Association and the Council on Pharmacy and Chemistry of the American Medical Association. As Dr. Norton concludes:

"The North Carolina State Board of Health certainly would not advocate any measure unless it believed that measure beneficial, not to a few but to all the people. Whether some like it or not, the world is moving on and will continue to do so as long as the human mind is allowed to explore new fields and discover added benefits for health and happiness. The policy of fluoridation also is given the endorsement of the United States Public Health Service, which is responsible not to only four million people but to more than 150 million people.

"It is pointed out by the Public Health Service that for about a dime a year, per person, communities can add fluoride to their water supplies and bring their children the benefits of 40 to 65 per cent less tooth decay. Children under one year of age will receive practically full benefits of fluoride drinking water. Children who are older, when fluoride is added to the water, will receive substantial protection against tooth decay, but not so much as young-

er children. This protection, however, continues throughout life. The United States Public Health Service also points out that, by adding fluoride to community water supplies, dental bills can be materially decreased for both extractions and replacements. The cost of a single filling will pay for fluoride for one person for about 30 years."

* * *

DOROTHY THOMPSON ON BARBITURATES

The leading article by Miss Dorothy Thompson, in the *Ladies Home Journal* for March, is a sweeping condemnation of barbiturates⁽¹⁾. Much of what Miss Thompson says is true; but it is calculated to do far more harm than good. Unquestionably the barbiturates are greatly abused, and they should be dispensed only on the prescription of doctors who understand the needs of the patients for whom they are intended.

The chief objection to such articles as Miss Thompson's is that they are read avidly by the very people who most need barbiturates. These patients then become so afraid of becoming addicts that it requires all a doctor's powers of persuasion to convince them that they will not become addicts from an occasional sleeping pill or capsule. One can hardly blame a patient for being frightened by such statements as "even ordinary doses can produce temporary mental disturbances, delirium and even hallucinations"; "A long period of use, with cumulative effects, produces symptoms difficult to distinguish from those of paresis, encephalitis, multiple sclerosis or acute psychosis (insanity)."⁽¹⁾

Even if a doctor succeeds in getting such a patient to take the prescription for a hypnotic out of the office, the chances are that it will never be filled; or if filled, that it will not be taken; or if taken, that the fear engendered by such an article will more than outweigh the sedative effect of the drug. A writer in a recent issue of the *British Medical Journal* said that most patients with anxiety neuroses required at least twice the average dose of a hypnotic in order to overcome their prejudice against any sort of sedation. Great Britain must also have its lay writers on medical subjects.

In contrast to Miss Thompson's authoritative statements as to the danger of barbiturates, and also as to their uselessness, Dr. Walter Alvarez, in his recent classic work, *The Neuroses*, says:

"Many persons with insomnia need help from drugs. They could get to sleep without them, but they might have to wait until 2 a.m., and that would mean that they would be sleepy next day . . . Many laymen and even some physicians fear soporifics and think that they are habit forming, but in my experience, they are not. True habituation with euphoria or a running up of the dosage, or withdrawal symptoms have been reported, but I have not seen the syndrome. In forty-five years I have seen perhaps a dozen persons who were taking barbiturates to excess, but they had all had a psychopathic personality to begin with. Every one of them was able to stop the use of the drug instantly and without symptoms of withdrawal; their only complaint then was that without help from something they could not sleep."⁽²⁾

And Dr. Wallace Yater has recently said:

"Of all the drugs at our disposal perhaps the most valuable are phenobarbital and belladonna. The former has been very much maligned in recent years. It has been called a dangerous drug, and yet I venture to say that it is prescribed more than any other. It has been called habit-forming, but my own experience is that it is harder to get patients to continue taking it than to stop its use."⁽³⁾

Undoubtedly a patient's confidence in his doctor is one of the chief factors in his recovery. Anything that lessens that confidence does the patient a disservice. For that reason, professional writers should be very careful of the subjects they choose and the language they use in writing articles on medical matters. The patients who most need to accept medical advice are often the ones who are most influenced by what they read in popular magazines.

Such patients may, to some extent, be desensitized to such articles by telling them the story of Dr. Oliver Wendell Holmes, who, on finding one of his hypochondriacal patients poring over a medical book in the Boston Public Library, tapped him on the shoulder and whispered, "Better look out, old man! Some day you'll die of a misprint."

References

1. Thompson, D.: Why Can't Americans Sleep? *Ladies Home Journal*, March, 1952, p. 11.
2. Alvarez, W. C.: *The Neuroses*, Philadelphia and London, W. B. Saunders & Co. 1951, pp. 587-588.
3. Yater, M.: Keeping Abreast of Medical Progress, *Pennsylvania M. J.* 54:425-429 (May) 1951.

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Committees and Organizations

Public Relations Committee

THE DOCTOR AND REHABILITATION

The North Carolina Department of Vocational Rehabilitation and the physician can be of tremendous help to each other. To the doctor, the agency is a means of helping many of his patients who have physical or mental handicaps and who are unable to pay for essential medical care. To the agency, the doctor gives valuable advice, diagnostic aid, and restorative measures through treatment or corrective surgery.

The Rehabilitation Department accepts clients under the following circumstances:

1. The individual must have a permanent or static disability which constitutes an employment handicap. The department does not accept acute cases.
2. He must be unable to pay part or all of the bill. Rehabilitation supplies the difference.
3. The prognosis for the patient returning to self-sustaining work must be favorable.
4. The condition must be such that it can be cured or substantially alleviated by a short period of hospitalization or medical care.
5. Usually the department cannot accept cancer cases, because the prognosis is poor. Tuberculosis can only be accepted for service other than treatment. Treatment of tuberculosis would be of a long drawn-out nature. There are other cases in which the prognosis at best is poor.

Rehabilitation accepts cases, not to sponsor treatment as such, but to enable the individual to return to gainful employment.

Rehabilitation, in addition to medical treatment and surgery, is able to provide training tuition, training supplies, occupational tools and equipment, prosthesis, or whatever the particular individual needs, in each particular case, to return to gainful employment.

Without the doctor's evaluation, some hidden condition such as a bad heart might exist and cause attempts at rehabilitation to go for naught. Again, corrective surgery may enable a person to do work he is physically unable to do.

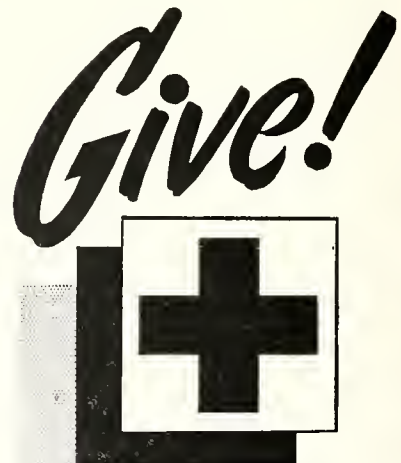
The physician and Rehabilitation may be considered a team, each supplying that phase of service needed to restore to employment

or make employable the physically handicapped person. Approximately one fifth of all persons on Rehabilitation rolls are referred by one or another category of medical personnel. Rehabilitation in turn, refers many patients to the physician who otherwise would never have secured needed medical attention.

Many times a physician ponders a patient's problem of medical restoration. Rehabilitation is one outlet for many. The referrals and evaluations of physicians are welcomed.

After the doctor has completed the treatment phase the rehabilitation counselor is faced with the problem of getting the patient into employment. Here the doctor is of immense importance in the picture. His advice as to work limitations and capacities plays a vital part, on which might well hinge the future vocational adjustment of the patient. The counselor can test the aptitudes, provide training, tools, counsel, guidance and placement; but, unless he knows the capacities and limitations of the patient, he is in a difficult procedure. What can the patient do? What can't he do? What must he guard against? What is the prognosis, both for life and for work expectancy? These are the problems the physician must evaluate in guiding the patient and the rehabilitation counselor.

ROBERT B. HAWKINS
Senior Rehabilitation Supervisor



BULLETIN BOARD

PRELIMINARY PROGRAM of the NINETY-EIGHTH ANNUAL SESSION

The Medical Society
of the
State of North Carolina
May 5, 6, and 7, 1952
PINEHURST, NORTH CAROLINA
Headquarters—Hotel Carolina

RESUME OF PROGRAM

SUNDAY, MAY 4, 1952

- 11:00 A.M.—Executive Council Meeting (Small Card Room)
- 2:00 P.M.—Medical Motion Picture (Large Card Room)
- 8:00 P.M.—Memorial Service
Sermon: "Witnessing Our Own Immortality"
Dr. I. G. Greer, Executive Vice President of the
Business Foundation of North Carolina, Chapel
Hill, N. C. (Ball Room)
Music: Sandhills Madrigal Society—Choral Selec-
tions

MONDAY, MAY 5, 1952

- 9:00 A.M.—Registration Booth opens (Front Lobby)
- 9:00 A.M.—Technical Exhibits open (West Porches)
- 9:30 A.M.—Medical Motion Picture (Large Card Room)
- 1:00 P.M.—Scientific Exhibits open (East Porches)
- 2:00 P.M.—House of Delegates of Medical Society
(Ball Room)
- 5:30 P.M.—Intermission, House of Delegates of Medical So-
ciety
- 5:30 P.M.—Social Hour, Medical College of Virginia Alumni
Association (Pine Room)
- 6:00 P.M.—Medical College of Virginia Alumni Dinner
(Crystal Room)
- 6:00 P.M.—Scientific and Technical Exhibits Close
- 8:00 P.M.—House of Delegates Reconvenes (Ball Room)
- 8:00 P.M.—Medical Auxiliary Executive Board (Dutch Room)
- 8:30 P.M.—Medical Auxiliary Biogo Party (Large Card Room)

TUESDAY, MAY 6, 1952

- 7:00 A.M.—Medical Officers' Breakfast (Crystal Room)
- 8:00 A.M.—Registration Booth opens (Front Lobby)
- 8:45 A.M.—Exhibits open (West Porches—East Porches)
- 9:00 A.M.—First General Session of Medical Society
(Ball Room)
- 9:00 A.M.—Medical Auxiliary, House of Delegates Meeting
(Pine Room)
- 11:30 A.M.—Medical Auxiliary Annual Meeting (Pine Room)
- 12:10 P.M.—Presentation High School Essay Contest Winner
(Amos N. Johnson, M.D., Chairman)—Ball Room
- 1:00 P.M.—Medical Auxiliary Luncheon
(Pinehurst Country Club)
- 1:00 P.M.—Medical Alumni Luncheons (Schedule and places
to be announced in official program.)
- 2:30 P.M.—Scientific Section Meetings, Medical Society:
Section on Practice of Medicine and Surgery
(Large Card Room)
Section on Surgery (Ball Room)
Section on Neurology and Psychiatry (Theatre)
Section on Radiology (Pine Room)
Section on Pathology (Dutch Room)
- 7:00 P.M.—President's Dinner (Main Dining Room)
- 10:00 P.M.—Entertainment—Floor Show (Ball Room)
- 11:00 P.M.—President's Ball (Ball Room)

WEDNESDAY, MAY 7, 1952

- 8:00 A.M.—Registration Booth opens (Front Lobby)
- 8:45 A.M.—Exhibits open (West Porches—East Porches)
- 9:00 A.M.—Medical Auxiliary Officers' Breakfast (Stag Room)
- 9:00 A.M.—Second General Session, Medical Society
(Ball Room)
- 10:00 A.M.—Bridge and Canasta Party Medical Auxiliary
(Large Card Room)
- 10:50 A.M.—Nominations and Elections
- 12:00 Noon—Recess for Conjoint Session (Ball Room)
- 12:25 P.M.—Reconvene General Session—Award of Exhibit At-
tendance Prizes and Golf Prizes (Ball Room)
- 1:00 P.M.—Medical Alumni Luncheons (Schedule and places
to be announced in official program.)
- 2:30 P.M.—Second Meeting, House of Delegates Medical So-
ciety (Small Card Room)
- 2:30 P.M.—Scientific Section Meetings, Medical Society:
Section on Practice of Medicine (Ball Room)
Section on Ophthalmology and Otolaryngology
(Large Card Room)
Section on Pediatrics (Theatre)
Section on Gynecology and Obstetrics (Pine Room)
Section on Public Health and Education (The
Village Chapel—Episcopal)
- 5:00 P.M.—Third General Session (Ball Room)
Adjournment *Sine Die*

PROGRAM OF THE MEDICAL SOCIETY

OFFICERS' BREAKFAST

TUESDAY, MAY 6, 1952

(Crystal Room)

- 7:00 A.M.—(Officers will assemble in Crystal
Room)
- 7:30 A.M.—Breakfast for Officers (Crystal Room)
Dr. Fred C. Hubbard, Presiding
- 8:00 A.M.—Address (subject to be announced)
Mr. Leo Brown, Director, Department
of Public Relations, American Medical
Association, Chicago
- 8:30 A.M.—Announcements
Adjournment

FIRST GENERAL SESSION

TUESDAY, MAY 6

(Ball Room)

- 9:00 A.M.—Call to Order, Millard D. Hill, M.D.,
Chairman, Committee on Arrangements
Invocation:
Announcements
Presentation of President Frederic C.
Hubbard, M.D.
- 9:10 A.M.—Report of Committee on Scientific
Awards:
Rowland T. Bellows, M. D., Chairman,
Charlotte
William S. Doshier, M.D., Wilmington
Isaac H. Manning, Jr., M.D., Durham
Ernest Furgurson, M.D., Plymouth
- 9:20 A.M.—From Section on General Practice of
Medicine and Surgery—Wiley S. Co-
zart, M.D., Fuquay Springs, Chairman
"Caution—Curves Ahead"
Mr. Mac F. Cahal, Executive Secretary,
National American Academy of Gen-
eral Practice, Kansas City, Kansas
- 9:40 A.M.—From Section on Surgery—Donald B.
Koonce, M.D., Chairman, Wilmington
"The Use of Gastric Analysis in the
Diagnosis of Surgical Disease"
Nathan Womack, M.D., Chapel Hill
Discussant: Deryl Hart, M.D., Durham
- 10:00 A.M.—Address: "A New Approach to the Care
of Alcoholics at the State Level"—Ebbe
C. Hoff, M.D., Professor of Neurologi-
cal Science, Medical College of Vir-
ginia; Medical Director of the Division
of Alcohol Studies and Rehabilitation
of the State Department of Health,
Richmond
- 10:30 A.M.—Address:
John W. Cline, M.D., President, Ameri-
can Medical Association, San Francisco,
California
- 11:00 A.M.—From Section on Neurology and Psy-
chiatry—Guy L. Odom, M.D., Chairman,
Durham
Title to be Announced
George C. Ham, M.D., Professor of
Psychiatry, University of North Car-
olina, Chapel Hill
- 11:20 A.M.—From Section on Radiology—George J.
Baylin, M.D., Chairman, Durham
"Abnormalities of Canalization of the
Gastro-Intestinal Tract"
Edward B. D. Neuhauser, M.D., Chief
Radiologist at the Children's Medical
Center, Boston, Massachusetts
- 11:40 A.M.—From Section on Pathology—Thomas
B. Wilson, M.D., Chairman, Raleigh
"Role of the Bronchial Artery in Pul-
monary Disease"
C. Bruce Taylor, M.D., Chapel Hill

SECTION ON PRACTICE OF MEDICINE AND SURGERY

(Large Card Room)

Tuesday, May 6, 2:30 P.M.

- Wiley S. Cozart, M.D., Chairman, Fuquay Springs
- "Thoracic Surgical Problems in Infancy and Childhood"
W. C. Sealy, M.D., Duke University, Durham
- "Electrocardiography in General Practice"
D. N. Stewart, M.D., Hickory
- "Use of Intravenous Procaine Hydrochloride, Medical and Surgical Conditions"
A. G. Crumpler, M.D., Fuquay Springs
- "Management of Gout"
Henry L. Valk, M.D., Bowman Gray, Winston-Salem
- "Trichlorethylene (Triolene) Analgesia for Obstetrics and Minor Surgery in a General Practice"
Gordon Smith, M.D., Snow Hill
- "Comparative Biological Effects of the Vitamin Inositol with Other Like Vitamins"
R. F. Mobbs, M.D., Aberdeen
- "Caution—Curves Ahead"
Mr. Mac F. Cahal, Executive Secretary, National American Academy of General Practice, Kansas City, Missouri
(Before First General Session)

SECTION ON SURGERY

(Ball Room)

Tuesday, May 6, 2:30 P.M.

- Donald B. Koonce, M.D., Chairman, Wilmington
- "An Evaluation of the Present Methods of Treatment of Prostatic Obstructions"
William Coppridge, M.D., Durham; Louis C. Roberts, M.D., Durham; Jack Hughes, M.D., Durham
Discussant: John Rhodes, M.D., Raleigh
- "Surgery in the Older Person"
Howard Bradshaw, M.D., Winston-Salem
Discussant: Wingate M. Johnson, M.D., Winston-Salem
- "A Technique of Saphenous Vein Stripping"
(Moving Picture)
Alex Webb, M.D., Raleigh
Discussant: Max Schiebel, M.D., Durham
- "Management of Symptomless Intrathoracic Lesions"
Paul Sanger, M.D., Charlotte
Discussant: W. C. Sealy, M.D., Durham
- "Anesthesia and Supportive Therapy for Surgery in Infants and Children"
Felda Hightower, M.D., Winston-Salem
Discussant: Leonard Nanzetta, M.D., Winston-Salem
- "The General Principles of Treating Fractures in Children"
Lenox Baker, M.D., Durham, and R. W. Conrad, M.D., Durham
Discussant: Malory Pittman, M.D., Wilson
- "The Use of Gastric Analysis in the Diagnosis of Surgical Disease"
Nathan Womack, M.D., Chapel Hill
Discussant: Deryl Hart, M.D., Durham
(Before First General Session)

SECTION ON NEUROLOGY AND PSYCHIATRY

(Theatre)

Tuesday, May 6, 2:30 P.M.

- Guy L. Odom, M.D., Chairman, Durham
- "Diagnostic Problems of Slow Growing Intracranial Tumors"
Richard H. Ames, M.D., Greensboro
Discussant: Joseph B. Stevens, M.D., Greensboro

"Psychiatric and Psychological Evaluation of Sixty First Offenders"

William P. Wilson, M.D., Duke University School of Medicine, Durham

"Residual Effects of Rocky Mountain Spotted Fever on the Central Nervous System"

George T. Harrell, M.D., and Richard L. Masland, M.D., Bowman Gray School of Medicine, Winston-Salem

"Survey of Ruptured Intervertebral Discs in the Cervical Region"

Courtland H. Davis, Jr., M.D., Guy L. Odom, M.D., and Barnes Woodhall, M.D., Duke University School of Medicine, Durham

Discussant:

"Severe Choreic States in Adults as Manifestations of Depressive Reactions"

Colonel William E. Wilkinson, M.D., U. S. Army, Duke University School of Medicine, Durham

"The Care of the Traumatic Paraplegic"

Eben Alexander, Jr., M.D., Bowman Gray School of Medicine, Winston-Salem

Title to be Announced

George C. Ham, M.D., Professor of Psychiatry, University of North Carolina, Chapel Hill
(Before First General Session)

SECTION ON RADIOLOGY

(Pine Room)

Tuesday, May 6, 2:30 P.M.

- George J. Baylin, M.D., Chairman, Durham
- "The Management of Cystic Disease of the Lungs"
Will C. Sealy, M.D., Associate Professor of Surgery in Charge of Thoracic Surgery, Duke Hospital, Durham
- "Roentgen Findings in Congenital Deformities of the Hips, Joints and Lower Extremities"
Leonard Goldner, M.D., Assistant Professor of Orthopedic Service, Duke Hospital, Durham
- "The Effects of the Atomic Blast at Hiroshima and Nagasaki"
W. C. Davison, M.D., Dean of Medical School and Professor of Pediatrics, Duke University
- Intermission
- "The Roentgen Diagnosis of Congenital Malformations of the Heart"
Edward B. D. Neuhauser, M.D., Chief Radiologist at The Children's Medical Center, Boston, Massachusetts
- "Abnormalities of Canalization of the Gastro-Intestinal Tract"
Edward B. D. Neuhauser, M.D., Chief Radiologist at The Children's Medical Center, Boston, Massachusetts
(Before First General Session)

SECTION ON PATHOLOGY

(Dutch Room)

Tuesday, May 6, 2:30 P.M.

- Thomas B. Wilson, M.D., Chairman, Raleigh
- "A Classification of Renal Disease"
Paul Kimmelstiel, M.D., Charlotte
- "Necrotizing Glomerulitis"
Thomas N. Lide, M.D., Winston-Salem
- "Nephrotic Syndrome with Pyelonephritis"
Robert W. Prichard, M.D., Winston-Salem
- "Hyperparathyroidism and Renal Dysfunction"
George J. Race, M.D., Durham
- "Lower Nephron Nephrosis; an Unusual Case"
Bernard F. Fetter, M.D., Durham
- "Role of the Bronchial Artery in Pulmonary Disease"
C. Bruce Taylor, M.D., Chapel Hill
(Before First General Session)

PRESIDENT'S DINNER

(Main Dining Room)

Tuesday, May 6, 1952

- 7:00 P.M.—Banquet
Toastmaster—W. Reece Berryhill, M.D.,
Chapel Hill
Invocation:
- 7:40 P.M.—Presentation of Guests
- 7:50 P.M.—Address:
President Fred C. Hubbard, M.D., North
Wilkesboro
- 8:20 P.M.—Presentation of President's Jewel
James H. McNeill, M.D., North Wilkes-
boro
- 8:30 P.M.—Address: (Title to be designated)
John W. Cline, M.D., President, Ameri-
can Medical Association, San Francisco,
California
- 9:10 P.M.—Adjournment
- 10:00 P.M.—Floor Show Entertainment
(Ball Room)
- 11:15 P.M.
to
2:00 A.M.—President's Ball

SECOND GENERAL SESSION

(Ball Room)

WEDNESDAY, MAY 7, 1952

Arthur L. Daughtridge, M.D.
Second Vice President, Presiding

- 9:00 A.M.—From Section on Practice of Medicine
George T. Harrell, M.D., Chairman
"The Effect of Cortisone on Infections"
Samuel P. Martin, M.D., Department of
Medicine, Duke University School of
Medicine, Durham
- 9:20 A.M.—From Section on Ophthalmology and
Otolaryngology
Ralph A. Arnold, M.D., Chairman
"Vertigo"
Beverly Armstrong, M.D., Charlotte
- 9:40 A.M.—From Section on Pediatrics
William L. Venning, Jr., M.D., Chair-
man
"Cancer in Childhood"
Wilburt C. Davison, M.D., Dean, Duke
University School of Medicine, Durham
- 10:00 A.M.—From Section on Gynecology and Ob-
stetrics
Adam T. Thorpe, M.D., Chairman
"Transfer of Anesthetic and Analgesic
Agents Across the Placental Barrier"
Charles E. Flowers, Jr., M.D., State
University of New York, Brooklyn,
New York
- 10:20 A.M.—From Section on Public Health and
Education
O. David Garvin, M.D., Chairman
"Chronic Illness and the Aging Popu-
lation"
William L. Fleming, M.D., Professor
of Preventive Medicine, U.N.C. School
of Medicine, Chapel Hill
- 10:40 A.M.—Election of members to expiring terms
of boards
- 11:00 A.M.—Address: "The Relations of Doctors and
the Farm Group"
Mrs. Haven Smith, Chappel, Nebraska
- 11:20 A.M.—(To be Announced)
- 11:50 A.M.—Recess of General Session

CONJOINT SESSION

Wednesday, May 7, 1952—12:00 o'clock Noon

G. Grady Dixon, President of the North Carolina
State Board of Health, will preside over this meet-
ing of the Medical Society of the State of North
Carolina and the State Board of Health.

- 12:25 P.M.—Reconvening of Second General Session
Award of Golf Prizes and Exhibit
Prizes
- 12:40 P.M.—Adjournment

SECTION ON PRACTICE OF MEDICINE

(Ball Room)

Wednesday, May 7, 2:30 P.M.

- George T. Harrell, M.D., Chairman,
Winston-Salem
- "Some Problems in the Clinical Use of Resins"
Woodrow Batten, M.D., Smithfield
- "Evaluation of Renal Function"
Charles H. Burnett, M.D., Department of Medi-
cine, School of Medicine, University of North
Carolina, Chapel Hill
- "Diagnostic and Therapeutic Use of Radioiodine"
Ernest H. Yount, Jr., M.D., and Robert Andrews,
M.D., Departments of Internal Medicine and
Radiology, Bowman Gray School of Medicine,
Winston-Salem
- "Subarachnoid Hemorrhage: Etiology and Mortal-
ity"
Guy L. Odom, M.D., Byron M. Bloor, M.D.,
James B. Golden, M.D., and Barnes Woodhall,
M.D., Department of Neurosurgery, Duke Uni-
versity School of Medicine, Durham
- "Etiology of Urticaria"
M. E. McRae, M.D., Greensboro
- "The Effect of Cortisone on Infections"
Samuel P. Martin, M.D., Department of Medi-
cine, Duke University School of Medicine,
Durham
(Before Second General Session)

SECTION ON OPHTHALMOLOGY
AND OTOLARYNGOLOGY

(Large Card Room)

Wednesday, May 7, 2:30 P.M.

- Ralph Arnold, M.D., Chairman, Durham
- "Corneal Transplantations"
L. Byerly Holt, M.D., Winston-Salem
- "Use of Cortisone in the Eye"
Clinton Chandler, M.D., McPherson Hospital,
Durham
- "Nystagmus"
Paul Abernathy, M.D., Burlington
- "Use of Chloromycetin in Ear, Nose and Throat"
James Harrill, M.D., Winston-Salem, John Aus-
band, M.D., Winston-Salem
- "Treatment of Septal Abscess"
Wardell Mills, M.D., Greensboro
- "Vertigo"
Beverly Armstrong, M.D., Charlotte
(Before Second General Session)

SECTION ON PEDIATRICS

(Theatre)

Wednesday, May 7, 2:30 P.M.

- William L. Venning, Jr., M.D., Chairman,
Charlotte
- "Humidification in Pediatrics"
Samuel F. Ravenel, M.D., Greensboro
- "Harelip and Cleft Palate"
W. T. Berkeley, M.D., Charlotte
- "Sins of Commission"
Robert T. Lawson, M.D., and J. B. Reinhart,
M.D., Winston-Salem

"Two Case Reports — Aplastic Anemia — Due to Chloromycetin?"
John L. Cochran, Jr., M.D.

"Histoplasmosis, Case Report"
Robert J. Murphy, M.D., Raleigh, and William H. Davis, Jr., Elizabeth City

"Cancer in Childhood"
Wilburt C. Davison, M.D., Dean, Duke University Medical School, Durham
(Before Second General Session)

SECTION ON GYNECOLOGY AND OBSTETRICS (Pine Room)

Wednesday, May 7, 2:30 P.M.

Adam T. Thorp, M.D., Chairman, Rocky Mount

"Evaluation of Methods of Pain Relief During Labor and Delivery with Reference to Mother and Child"

C. R. Stephen, M.D., Professor of Anesthesiology, Duke University, Durham
Discussants: C. E. Flowers, M.D., and R. N. Creadick, M.D.

"The Diagnosis and Management of Cervical Lesions" (with lantern slides)

Carlton N. Adams, M.D., Winston-Salem, and Donald Whitener, M.D., Winston-Salem

"Curability of Carcinoma of the Uterine Cervix"

J. Robert Andrews, M.D., Professor of Radiology, Bowman Gray School of Medicine, Winston-Salem

Tentative Title "Experiences with the Papanicolaou Smear"

Thomas W. Huey, Jr., M.D., Charlotte

"Transfer of Anesthetic and Analgesic Agents Across the Placental Barrier"

Charles E. Flowers, Jr., M.D., State University of New York, Brooklyn, New York
(Before Second General Session)

SECTION ON PUBLIC HEALTH AND EDUCATION

Village Chapel—Episcopal

Wednesday, May 7, 2:30 P.M.

O. David Garvin, M.D., Chairman, Chapel Hill

"Growth of School Children as an Index of the Nutritional Status of the Community"

A. Hughes Bryan, M.D., Professor of Public Health Nutrition, University of North Carolina, Chapel Hill
Discussant:

"Chronic Illness and the Aging Population"

William L. Fleming, M.D., Professor of Preventive Medicine, U.N.C. School of Medicine, Chapel Hill
(Before Second General Session)

THIRD GENERAL SESSION (Ball Room)

Wednesday, May 7, 1952

5:00 P.M.—Report of the House of Delegates

5:15 P.M.—Unfinished Business

5:20 P.M.—New Business

5:30 P.M.—Installation of President, President-Elect, and Vice-Presidents

5:40 P.M.—Remarks by President and President-Elect

5:50 P.M.—Adjournment sine die

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Postgraduate medical courses sponsored by the University School of Medicine and the Extension Division have been arranged at Gastonia, with the Gaston County Medical Society and adjoining county societies as co-sponsors, and at Salisbury, with the Rowan-Davie Counties Society as co-sponsor. The programs are as follows:

GASTONIA

March 19—

4:00 p.m. Painless Hemorrhage of Late Pregnancy

7:30 p.m. Differentiation of Hypertension in Pregnancy
Dr. John S. Fish, Emory University School of Medicine

March 26—

4:00 p.m. Liver Disease: Diagnosis

7:30 p.m. Liver Disease: Treatment
Dr. Franz J. Ingelfinger, Boston University Medical School

April 2—

4:00 p.m. The Relation of Life Stress to Organic Disease

7:30 p.m. A Further Discussion of The Relation of Life Stress to Organic Disease
Dr. Stewart G. Wolf, University of Oklahoma School of Medicine

April 9—

4:00 p.m. Diagnosis of Peripheral Vascular Disease

7:30 p.m. Treatment of Peripheral Vascular Disease
Dr. Hugh Montgomery, University of Pennsylvania School of Medicine

April 16—

4:00 p.m. Recent Advances in Pediatrics

7:30 p.m. Rheumatic Fever in Children
Dr. Robert D. Mercer, Cleveland Clinic, Cleveland

April 23—

4:00 p.m. Anesthesia;
exact topic to be announced.

7:30 p.m. Anesthesia;
exact topic to be announced.
Dr. Edward B. Tuohy, Georgetown University School of Medicine

SALISBURY

March 20—

4:00 p.m. Painless Hemorrhage of Late Pregnancy

7:30 p.m. Differentiation of Hypertension in Pregnancy
Dr. John S. Fish, Emory University School of Medicine

March 27—

4:00 p.m. Liver Disease: Diagnosis

7:30 p.m. Liver Disease: Treatment
Dr. Franz J. Ingelfinger, Boston University Medical School

April 3—

4:00 p.m. The Relation of Life Stress to Organic Disease

7:30 p.m. A Further Discussion of The Relation of Life Stress to Organic Disease
Dr. Stewart G. Wolf, University of Oklahoma School of Medicine

April 10—

4:00 p.m. Diagnosis of Peripheral Vascular Disease

7:30 p.m. Treatment of Peripheral Vascular Disease
Dr. Hugh Montgomery, University of Pennsylvania School of Medicine

April 17—

- 4:00 p.m. Recent Advances in Pediatrics
 7:30 p.m. Rheumatic Fever in Children
 Dr. Robert D. Mercer, Cleveland Clinic, Cleveland

April 24—

- 4:00 p.m. Anesthesia;
 exact topic to be announced.
 7:30 p.m. Anesthesia;
 exact topic to be announced.
 Dr. Edward B. Tuohy, Georgetown University School of Medicine

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Dr. N. A. Womack attended a joint meeting of the Society of Clinical Surgery, the Society of University Surgeons, and the Halsted Club in Baltimore on February 7 and 8.

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Dr. Charles H. Burnett spoke to the Randolph County Medical Society at its February meeting on "Mechanisms and Management of Edema."

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New appointments to the staff include:

Dr. W. P. Richardson, currently research professor of public health administration and head of the Department of Field Training in the School of Public Health of the University, as professor of preventive medicine and assistant dean in charge of continuation education. Dr. Richardson received his medical training at the Medical College of Virginia and his public health training at Johns Hopkins University. Since returning to North Carolina he has worked with several county health departments, the State Board of Health, and the School of Public Health at the University.

Dr. David A. Young, superintendent of the North Carolina Hospitals Board of Control, as clinical professor of psychiatry. Dr. Young attended Harvard Medical School and before returning to North Carolina in 1945 was a member of the faculty of the University of Utah.

Dr. Ernest Craige, a graduate of Harvard Medical School and at the present assistant in medicine at the Massachusetts General Hospital and the Harvard Medical School as assistant professor of medicine.

Dr. Isaac M. Taylor as assistant professor of medicine. Dr. Taylor also received his training at Harvard and at the Massachusetts General Hospital.

Dr. Jeffress G. Palmer as assistant professor of medicine. Dr. Palmer attended Emory University School of Medicine, had training at the North Carolina Baptist Hospital, and is at the present time a fellow in medicine at the University of Utah.

Dr. Thomas B. Barnett as instructor in medicine. Dr. Barnett is a graduate of the University of Rochester School of Medicine, where he now holds a position in the Department of Medicine.

Dr. Richard M. Peters as assistant professor of surgery in thoracic surgery. Dr. Peters received his training at Yale University and Washington University; since July, 1950, he has been on the staff at the latter institution.

Dr. Colin G. Thomas, Jr., a graduate of the University of Chicago Medical School, as assistant professor of surgery in general surgery. He comes to the University from the staff of the State University of Iowa College of Medicine.

Dr. John B. Hill and Dr. Gabriel F. Tucker, Jr., as assistant professors of pharmacology. Dr. Hill had his undergraduate training at the University of Wisconsin and his Ph.D. degree from Columbia University; before joining the staff at Columbia he taught at the University of Wisconsin. Dr. Gabriel received his M.D. degree at Johns Hopkins University and is now serving an internship at the Graduate Hospital of the University of Pennsylvania.

* * *

The first annual Medical Alumni Day was held in Chapel Hill on March 5; 250 alumni were present. Of the 28 living alumni of the old Medical School of the University that was operated in Raleigh from 1902 to 1910, the following were present: Drs. Z. M. Caveness of Raleigh, A. G. Woodard of Goldsboro, J. A. Ward of Hertford, A. E. Riggsbee of Durham, A. F. Nichols of Roxboro, J. M. Wilcox of Carthage, G. W. Gentry of Roxboro, and John A. Ferrell of Raleigh, and Dean Hubert Royster of Raleigh. Dr. William Coppridge, president of the Medical Alumni Association, presided at the meeting. Dr. W. T. Sanger, president of the Medical College of Virginia, Dr. Samuel H. Proger, of the New England Medical Center and professor of medicine at Tufts College Medical School, Dr. Charles M. Caravati, associate professor of clinical medicine at the Medical College of Virginia, Dr. Kinloch Nelson, professor of clinical medicine at the Medical College of Virginia, and Dr. John A. Ferrell, executive secretary of the North Carolina Medical Care Commission, participated in a roundtable discussion of the educational service functions of the Medical School to the State.

Officers of the Medical Alumni Association elected for the coming year were: president, Dr. Roy B. McKnight of Charlotte; vice president, Dr. Milton S. Clark of Goldsboro; secretary-treasurer, Dr. Thomas G. Thurston of Salisbury. Dr. J. B. Caldwell of Gastonia and Dr. Russell O. Lyday of Greensboro were named to the Alumni Council.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Postgraduate Courses

The first postgraduate course in psychiatry and neurology to be offered by the Bowman Gray School of Medicine of Wake Forest College will be available to 30 general practitioners and public health officers on March 18 and 19, 1952. The course will be under the direction of Dr. Lloyd J. Thompson, professor and director of the Department of Psychiatry and Neurology. Other participants in the teaching of the course will be: Dr. Richard L. Masland, associate professor of psychiatry and neurology; Dr. Paul Haun, assistant professor of psychiatry and clinical director of Graylyn; Dr. Angus C. Randolph, assistant professor of clinical psychiatry; Dr. John B. Reinhart, instructor in pediatrics and assistant in clinical psychiatry; Dr. Richard C. Proctor, instructor in psychiatry and neurology, and assistant director of Graylyn; Dr. Eben Alexander, Jr., assistant professor of neurosurgery; Dr. Robert L. McMillan, professor of clinical internal medicine; Dr. Frank R. Lock, professor and director of obstetrics and gynecology; Dr. David Cayer, associate professor of internal medicine; Miss Mary Sumner, associate in psychiatric social work; and Mr. Joseph Grassi, assistant professor of clinical psychology. Plans have been made for tours of the facilities at Graylyn, the rehabilitation center, as well as neurologic, psychiatric, and neurosurgical clinics, discussions of alcoholism, psychosomatic aspects of cardiovascular disorders, obstetrics and gynecology, and gastrointestinal disorders, in addition to demonstration of techniques of treatment.

The Bowman Gray School of Medicine will sponsor a postgraduate course in cardiovascular diseases on March 25, 26, and 27, under the direction of Dr. Robert L. McMillan, professor of internal medicine. The course will be offered to 35 general practitioners of small North Carolina communities, and the teaching will be a correlative effort on the part of the Departments of Internal Medicine, Radiology,

Microbiology, Surgery, Physiology and Pharmacology, Pediatrics, Obstetrics and Gynecology, and Psychiatry and Neurology. Included in the program are clinics, round table discussions, and lectures.

* * *

The Medical Alumni of Wake Forest College will meet at the Bowman Gray School of Medicine on April 17. During the morning hours, members of the faculty will be available on each of the hospital wards for rounds or conferences. During the afternoon a series of clinics will be presented by the faculty of the Departments of Surgery, Obstetrics and Gynecology, Internal Medicine, Pediatrics, Psychiatry and Neurology, and Neurosurgery. There will be a reception and banquet at the Old Town Club in Winston-Salem at six o'clock for the alumni and their wives.

* * *

Dr. Frank Lock, professor and director of obstetrics and gynecology, has recently been appointed on a committee to make a study and recommendations concerning possible revisions in the National Board examinations. Serving with Dr. Lock on the committee, which met in Princeton on February 29, are: Dr. William F. Mengert, chairman of the Department of Obstetrics and Gynecology, Southwestern Medical College; Dr. John I. Brewer, professor of obstetrics and gynecology, Northwestern University School of Medicine; Dr. Thaddeus L. Montgomery, professor of obstetrics and gynecology, Jefferson Medical College; and Dr. William E. Studdiford, Jr., professor of obstetrics and gynecology, New York University School of Medicine.

NORTH CAROLINA STATE BOARD OF HEALTH

"More than 96 per cent of the babies born in North Carolina now receive a birth certificate, according to the preliminary findings of a nationwide survey of birth registration," Dr. J. W. R. Norton, State Health Officer, has just announced. Dr. Norton stated that this registration test, recently conducted by the United States Public Health Service and the United States Bureau of the Census, with the North Carolina State Board of Health cooperating, revealed that North Carolina had a registration completeness of 96.1 per cent in 1950 as compared with 86.1 per cent in 1940. There are still an average of about four children out of every hundred born whose births are not properly filed by the attendant, to provide them with such identification later in life.

"Copies of such certificates are now needed for school enrollment, entrance into the Armed Services, passports for travel to foreign countries, identification, employment, inheritance, and many other purposes," Dr. Norton said. "Unless such births have been registered early, considerable delay is often encountered when certificates are needed; and the longer the delay, the more that are not filed."

NORTH CAROLINA TUBERCULOSIS ASSOCIATION

With 104 units reporting as of January 15, 1952, the total 1951 Seal sale is \$416,394.13. Of the 104 units, 99 had comparable reports. These 99 units show an increase of \$23,314.35, or 6 per cent over the same period last year.

Beaufort County, with a \$6,868.42 over January 1951, shows the largest increase. Mecklenburg is next with an increase of \$6,728.07, and then Cumberland, who topped the 1951 report by \$5,000.

* * *

Twenty-six persons were enrolled at the NTA Institute held in Southern Pines on February 4-15. Those appearing on the program from North Carolina were: Dr. William M. Peck, North Carolina San-

atorium; Dr. H. Stuart Willis, superintendent of North Carolina Sanatoriums; and Dr. Lucy Morgan, professor of health education, University of North Carolina.

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Twenty-five grants to aid medical research projects in tuberculosis and 11 research and teaching fellowships have been approved by the Board of Directors of the National Tuberculosis Association for the fiscal year beginning April, according to an announcement by Dr. Esmond R. Long, Director of Medical Research for the NTA.

Three grants were made in North Carolina: two to Duke University and one to the North Carolina State Sanatorium.

* * *

The Trudeau School of Tuberculosis will present its thirty-eighth annual session, beginning Monday, April 28, 1952, and continuing for four weeks. The subject matter will cover all aspects of pulmonary tuberculosis and also certain phases of other chronic chest diseases, including those of occupational origin.

A number of reservations have been requested for the 1952 session and inasmuch as registration is limited it is suggested that those who plan to attend make early application.

Address: Secretary, Trudeau School, Saranac Lake, New York.

NORTH CAROLINA SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

East Carolina College at Greenville, North Carolina, will again offer courses for teachers dealing with slow learners, and children with speech defects and hearing losses. Two clinics will be held for handicapped children.

Western Carolina Teachers College will have well known specialists for the courses for teachers interested in slow learning, emotional disturbances, speech defects, hearing losses, and orthopedically handicapped children. Clinical assistants will conduct the classes for the children. Dean W. E. Bird announces that a parent-child program will be tried this summer. The parent must register in courses related to her child's difficulty.

The University of North Carolina School of Education will offer three types of services for teachers interested in special education. Capable leadership will be provided for teachers wishing to help slow learners, those with speech handicaps, and those with reading difficulties. Limited laboratory and clinical experiences will be available. All work is on a graduate level.

North Carolina College in Durham is planning its program for special education teachers.

For information write to the Summer School Director—of the college of your choice.

EIGHTH DISTRICT MEDICAL SOCIETY

The Eighth District Medical Society will hold a meeting on April 10 at the Jefferson Club near Guilford College.

EDGECOMBE-NASH MEDICAL SOCIETY

The regular monthly meeting of the Edgecombe-Nash Medical Society was held in Rocky Mount on February 12 in conjunction with the regular meeting of the Fourth District Medical Society. Speaker of the evening was Dr. Ivan Brown, director of the blood bank, Duke Hospital, and associate director of the American Red Cross blood program.

FORSYTH COUNTY MEDICAL SOCIETY

Dr. Byrd S. Leavell, associate professor of medicine at the University of Virginia, spoke on "Some Problems Associated with Splenomegaly" at the dinner meeting of the Forsyth County Medical Society held on February 12, in Winston-Salem.

CARTERET COUNTY MEDICAL SOCIETY

The Morehead City Hospital entertained the Carteret County Medical Society at its regular monthly meeting Monday night, February 11. The scientific paper was presented by Dr. George W. Johnson, surgeon, of Wilmington. His subject was "Surgical Female Disorders."

The secretary of the society announced that the Camp Lejeune medical staff had invited the Carteret County Medical Society to attend the Camp Lejeune regular monthly medical and surgical seminar.

The president, Dr. Milton B. Morey, presided.

N. THOMAS ENNETT, M.D.
Corresponding Secretary

DUKE UNIVERSITY MEDICAL ALUMNI LUNCHEON

The Duke Medical Alumni luncheon during the meeting of the Medical Society of the State of North Carolina will be held Tuesday, May 6, at 1:00 p.m., at the Mid-Pines Club. Those planning to attend should notify the secretary, Dr. Talmage L. Peele, Box 3811, Duke Hospital, Durham, North Carolina.

NEWS NOTES

Dr. Harold B. Spangler has announced the opening of his office in Rocky Mount, North Carolina. His practice will be limited to infants and children.

TENNESSEE STATE MEDICAL ASSOCIATION

The one hundredth and seventeenth annual meeting of the Tennessee State Medical Association will be held in Knoxville, April 7, 8, and 9, with headquarters at the Andrew Johnson Hotel.

TRI-STATE MEDICAL ASSOCIATION

The fifty-third annual meeting of the Tri-State Medical Association of the Carolinas and Virginia was held in Roanoke, Virginia, February 18 and 19. Participating in the program from North Carolina were Dr. R. B. Davis of Greensboro, Dr. R. Burke Suitt of Duke University, Dr. Clyde M. Gilmore and Dr. Marvin E. McRae of Greensboro, Dr. R. L. Weinstein of Fairmont, and Dr. J. H. Neese of Monroe.

Officers of the Association include Dr. W. R. Wallace of Chester, South Carolina, president; Dr. James Asa Shield of Richmond, president-elect; Dr. J. F. Williams of Richmond, Dr. R. L. Crawford of Lancaster, South Carolina, and Dr. T. C. Bost of Charlotte, vice presidents; and Dr. J. M. Northington of Charlotte, secretary-treasurer.

BAYLOR UNIVERSITY COLLEGE OF MEDICINE

A refresher course for medical technologists will be presented at the Baylor University College of Medicine, Houston, Texas, by the Department of Biochemistry, August 18-23. Application should be made to Dr. J. H. Gast, Department of Biochemistry, Baylor University College of Medicine, Houston 25, Texas, before August 1. Registration is limited, and only qualified medical technologists should apply.

The fee is \$25 (\$10 payable with application). Requests for room reservation can be made with application. The Shamrock Hotel is offering a special rate of \$12 per day for two, three, or four persons per room (single beds).

INDUSTRIAL HEALTH CONFERENCE

The 1952 Industrial Health Conference will be held at the Netherland Plaza Hotel in Cincinnati, Ohio, April 19 to 26. The conference will include sessions of the Industrial Medical Association, the American Conference of Governmental Industrial Hygienists, the American Industrial Hygiene Association, the American Association of Industrial Dentists, the American Association of Industrial Nurses, and the U.S. Navy Fourth Annual Industrial Health Conference.

AMERICAN COLLEGE OF RADIOLOGY

The journal, *Radiology*, announced last month that a new compound had been developed for the radiographic visualization of the gallbladder and that clinical tests carried out so far showed that it was far superior to the opaque materials used in the past.

The new product will be marketed under the trade name, Telepaque, and is manufactured by Winthrop-Stearns Company.

UNITED CEREBRAL PALSY ASSOCIATION, INC.

To help relieve the acute shortage of physical therapists, United Cerebral Palsy announced recently that it had made a grant for \$12,000 to the Physical Therapy School of Northwestern University, Chicago, to enable the school to continue its training of therapists for another year.

FOUNDATION OF THE AMERICAN SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGERY, INC.**1952 Essay Contest in Plastic and Reconstructive Surgery**

The Foundation of The American Society of Plastic and Reconstructive Surgery offers awards in junior and senior classifications for original contributions in this field.

1. Junior Classification

Two six month scholarships in leading plastic surgery services in the United States, England and Italy. The contest is open to plastic surgeons in the specialty not longer than five years.

2. Senior Classification

Foundation's annual prize—Silver Plaque—for the best essay presented at the annual meeting of the American Society of Plastic and Reconstructive Surgery.

The winning essays, in both classifications, will appear on the program of the forthcoming annual meeting of the A.S.P. & R.S. to be held in New York City, November, 1952.

All entries must be received by the Award Committee not later than September 1, 1952.

Further inquiries should be addressed to:

The Award Committee
c/o Jacques W. Maliniac, M.D.
11 East 68th Street
New York 21, N. Y.

AMERICAN COLLEGE OF ALLERGISTS

On April 4, 5, and 6 at Pittsburgh, Pennsylvania, the American College of Allergists will offer an instruction course in allergy. To insure complete coverage, the college has called in some 60 well known authorities in the field to give addresses, clinical talks, and demonstrations. The program has been designed for physicians in other fields of practice, especially those in general practice, that they may learn to recognize and manage the allergic component in the complaints of their patients.

For further information and a copy of the program, write the office of the American College of Allergists, LaSalle Medical Building, Minneapolis 2, Minnesota.

* * *

The next annual meeting of the American College of Allergists will be held this year at the William Penn Hotel in Pittsburgh, Pennsylvania, on April 7, 8, and 9. The college is offering an unusually practical program for its fellows, members, and guests.

All reputable physicians are welcome to attend. For more particulars, write the College, LaSalle Medical Building, Minneapolis 2, Minnesota.

POSTGRADUATE COURSE IN OBSTETRICS

A postgraduate course in the form of an obstetric seminar will be held at the Sheraton Plaza Hotel in Daytona Beach, Florida, on September 8, 9, and 10, under the sponsorship of the Maternal Welfare Committee of the Florida Medical Association, and the Bureau of Maternal and Child Health of the Florida State Board of Health. Dr. Frances E. M. Read, director of the bureau, has extended an invitation to practitioners in North Carolina. Speakers who are outstanding in the field of obstetrics will participate in the program, which will consist of formal papers and round table discussions.

MUSCULAR DYSTROPHY ASSOCIATIONS OF AMERICA, INC.

Three new research grants in widely separated parts of the country were announced recently by the Muscular Dystrophy Associations of America. This brings the total of research projects initiated and supported by the Association to nine, all created within the past year, according to Michael E. Freeland, executive director.

Among the recent grants was one to Dr. W. F. H. M. Mommaerts at Duke University, for the study of micromethods in the investigation of muscular metabolism.

(BULLETIN BOARD CONTINUED ON PAGE 164)



AUXILIARY

TWENTY-NINTH ANNUAL MEETING OF THE AUXILIARY TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

PROGRAM

SUNDAY, MAY 4, 1952

8:00 P.M.—Memorial Service for departed Medical Society and Auxiliary Members—Ball Room—Mrs. H. Stuart Willis, Chairman, Auxiliary Memorial Committee

MONDAY, MAY 5, 1952

8:00 P.M.—Executive Board Meeting—Dutch Room

8:30 P.M.—Bingo Party—Large Card Room—One Dollar for evening. Any money left after expenses will be divided among the Sanatoria Bed Endowment Funds. Men Welcome! Mrs. George Heinitsch, Chm.

TUESDAY, MAY 6, 1952

9:00 A.M.—House of Delegates of Medical Auxiliary—Pine Room

11:00 A.M.—Coca-Cola Intermission

11:30 A.M.—Annual Meeting of Medical Auxiliary—Pine Room

1:00 P.M.—Luncheon, Pinchurst Country Club (Honoring Mrs. Leo Schaefer, Salina, Kansas, First Vice-President of the Auxiliary to the American Medical Association; Mrs. Stanley Hill, Corinth, Mississippi, Vice-President of Southern Medical Auxiliary) Mrs. Michael Pishkoe, Chairman, Fashion Show, Mary Rice Shop, Hamlet. Informal Reception immediately following luncheon

7:00 P.M.—President's Dinner—Carolina Hotel Dining Room

10:00 P.M.—Annual Ball—Ball Room

WEDNESDAY, MAY 7, 1952

9:00 A.M.—Breakfast—Stag Room—Medical Auxiliary Executive Board Members and County Presidents

10:00 A.M.—Bridge and Canasta Party—Large Card Room—Mrs. R. L. McMillan, Chairman

Conference Urges Constructive Program Now For Aging Workers

Government and industry were urged to discard the economically-wasteful and socially harmful policy of compulsory employee retirement at age 65, and to begin planning now a constructive program to deal with the growing problem of older workers.

The recommendation was made by a group of 75 experts in industrial relations, medicine, labor and education at the close of a three day conference on the nation's aging population. Dr. Theodore G. Klumpp, president of Winthrop-Stearns, Inc., was chairman of the conference which was held at Arden House on January 25-27. Sponsors were the McGregor Fund of Detroit and the National Committee on the Aging of the National Social Welfare Association.

The conferees agreed that retirement solely on the basis of age was socially wasteful, and that "older persons willing and able to meet job requirements could make a positive contribution to the national economy." The country is now losing the potential labor of 1,500,000 persons who could earn \$4,500,000,000 a year, according to Dr. Thomas Parran, dean of the Graduate School of Public Health at the University of Pittsburgh.

BOOK REVIEWS

Annual Report on Stress. By Hans Selye. 511 pages plus references. Price, \$10.00. Montreal, Canada: Acta, Inc., 1951.

As indicated on the title page, this volume represents the first of a series of annual supplements to the book *Stress—The Physiology and Pathology of Exposure to Stress* by the same author. This volume reviews the stress concept in 1951, and summarizes the objections raised against the concept. He then reviews the new material which accumulated during the year with reference to the concept. This material is classified under the headings: the stressor agents; the adaptive hormones; special physiology and pathology of systemic stress; metabolism (carbohydrates, proteins, fats, water, electrolytes, hormones and hormone-like substances, enzymes, vitamins, hemoglobin, glutathione, metabolic diseases of adaptation); and morphologic and functional changes in various organs (the endocrines, skeletal system, the blood and hemopoietic systems, cardiovascular system, kidneys, respiratory system, muscular system, nervous system, sense organs, gastrointestinal system, skin, inflammation, reticulo-endothelial system, serologic reactions, wound healing, and so forth).

The organization of the book parallels that of the original volume in order to facilitate following up new developments in specific fields. In addition, the book is well indexed; approximately 3,300 references are listed in this volume.

The author closes the volume with a brief summary in which he presents his concept of a unified theory of medicine. The book will be of interest particularly to those who have purchased the initial volume and wish to keep up with the developments in this concept.

Doctors in Blue. By George W. Adams. 253 pages, with 16 illustrations. Price, \$4.00. New York: Henry Schuman, 1952.

This is a fine book. It covers the general development of the medical service of the Union Army during the War Between the States, and then treats specialized facets such as surgery, hospital arrangements, nursing services, sanitation. All this is accomplished with a minimum of footnotes and in a readable narrative style. The reviewer has done enough prodding around in the references of this period to realize the enormous amount of work and critical judgment required to make a coherent story out of the mass of available fact. Dr. Adams, a professional historian, shows a rare appreciation of what is significant medically in his material, and a balanced point of view regarding the state of medicine in the 1860's, which is often lacking in modern lay writings dealing with the period.

It will be hard to find a physician, whatever his specialty or degree of interest in history, who would not enjoy this book. The War Between the States saw the last wholesale production of traumatic injuries before the advent of antiseptic techniques and the bacterial theory of disease. As Dr. Adams says, "The briefest review of surgical procedures in the dressing stations and field hospitals shows such a gulf between the methods of that day and the aseptic routine of our own that centuries, not a mere two generations, might well have separated 1865 and 1914." Except for ether and chloroform anesthesia, fortunately in wide use before 1861, and the abandonment of cauterization in the wake of Ambrose Pare, there was little but a change in mechanical handling due to the great size of armies offered to the wounded in 1865 that was not available to those who fell in the Roman legions.

Dr. Adams' work will be enjoyed widely outside of the medical profession, and can be recommended as sufficiently nontechnical for a general audience without stooping to "popularization." There are a few medical comments which the reviewer would take exception to, but they are scarcely worth noting, and it is hoped that the book will go into a second edition to permit their correction, more in the interest of the book than the corrections. The list of sources, appendix, and index add considerably to the value of the book.

Hippocrates on Intercourse and Pregnancy. Translated by Tage U. H. Ellinger, Sc. D. M.A., Professor of Zoology and Genetics of the University of Philippines. With an Introduction and Notes by Alan F. Guttmacher, M.D., Associate Professor of Obstetrics, Johns Hopkins University. 128 pages. Price, \$2.50. New York: Henry Schuman, Inc., 1952.

The author of the original Greek treatise was not, we are told in the foreword, the great Hippocrates of Cos, but some other Greek physician of the rival Cnidian school. This little volume is interesting chiefly because of the quaint mixture of observation with unbridled imagination which was used in the theories of impregnation of the female and of the growth and development of the fetus.

The translator has done an excellent job, and so has the printer; but, even in these days of inflated currency, \$2.50 seems a high price for such a small book.

Classified Advertisements

General surgeon, native of North Carolina, would like location in town of 10,000 or more after July 1st. Four years of fully approved training in 850-bed hospital, with experience in thoracic surgery and oncology. Board eligible. Aged 31, married, 2 children. Interested persons write MS-O-1, P.O. Box 790, Raleigh, North Carolina.

WANTED:

Young physician under thirty-five, military exempt for one year, to become associated with well established physician to do general practice. Ninety per cent of the work in office and hospital. Would prefer someone who is interested in internal medicine. Salary in the beginning and percentage basis later. Reply to 30-2, P. O. Box 790, Raleigh, N. C.

Dr. S. P. Watson, an Eye, Ear, Nose and Throat Specialist in New Bern, N. C., would like to have a younger man come in with him or take over his office. Reply: Dr. S. P. Watson, Box 588, New Bern, N. C.

"To an M.D. that will assume the balance of my lease of three months, I will turn over my ground floor office of three nice rooms. Nothing to sell. I plan to leave this city the last of April, 1952. Population 25,000." Reply 1-5, P.O. Box 790, Raleigh, N. C.

BULLETIN BOARD

(CONTINUED FROM PAGE 162)

AMERICAN COMMITTEE ON MATERNAL WELFARE

A two year contest to promote research on the so-called "toxemias of pregnancy" has been announced by the American Committee on Maternal Welfare, Inc. The contest is open to students and personnel in the health professions who are not of higher academic rank than instructor, or who are of junior rank on the hospital or other staff with which they are connected.

Dr. Fred L. Adair, president of the committee, stressed that all theses must be based upon original work done by the authors, and must be submitted no later than January 1, 1954. First and second prizes of \$500 and \$250, respectively, will be awarded later in 1954 at the Sixth American Committee on Maternal Welfare. All theses submitted will become the property of the committee.

The research contest was announced in advance of the fifth American Congress on Obstetrics and Gynecology, which will be held in Cincinnati, March 31 through April 4, 1952. During this meeting a comprehensive summary will give all progress and knowledge to date concerning the causes and treatment of the "toxemias."

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

More than 2,500 physicians and nurses are expected to attend the fifth American Congress on Obstetrics and Gynecology, to be held in Cincinnati's Netherland-Plaza Hotel March 31 through April 4. It is sponsored by the American Committee on Maternal Welfare.

The program will bring up to date all scientific and clinical aspects of obstetrics and gynecology. In addition to this comprehensive medical program, there will be papers on nursing and public health, and a special session on sociologic factors.

AMERICAN LIBRARY SERVICE

The American Library Service is in possession of an exceptional collection of reprints of important articles that have appeared in medical journals (many with limited circulation) during the past 60 years. Since this material is no longer available through the usual channels of purchasing, it should prove to be of interest to the individual specialist, to the hospital or university library, and to the research student and historian.

The collection was assembled at great effort over a period of many years. Since it includes significant contributions to medical literature which are not readily available, it has been decided to break up the collection and offer its component parts at a nominal figure. A list of available items will be furnished at no obligation on request. Address the American Library Service, 117 West 48th Street, New York 19, New York.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE

The Commonwealth and Empire Health and Tuberculosis Conference will be held in London, England, July 8 to 13. The Conference is open to all those interested in preventive medicine, including the medical and veterinary professions, commercial and industrial executives, nurses, public health administrators, and the like. At the last Conference

held in 1949 over a thousand delegates from 50 countries were present. Subjects for discussion include "Protective Vaccination," "Contemporary Ideas in the Management of the Tuberculous Patient," "The Patient in Industry," and others. A new feature this year will be special smaller gatherings for those with a particular interest, whether doctors, nurses, public health officials, or social workers, at which appropriate subjects will be discussed.

All information can be obtained from the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.1.

FEDERAL SECURITY AGENCY

Public Health Service

A competitive examination for appointment of medical officers to the Regular Corps of the United States Public Health Service will be held on June 3, 4, and 5, 1952. Examinations will be held at a number of points throughout the United States, located as centrally as possible in relation to the homes of candidates. Applications must be received no later than April 30, 1952.

Application forms and additional information may be obtained by writing to the Surgeon General, United States Public Health Service, Federal Security Agency, Washington 25, D. C. Attention: Division of Commissioned Officers.

Applications received after April 30, 1952, can not be accepted.

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The Federal Security Agency recently announced the appointment of Dr. Calvin B. Spencer as Chief of the Division of Foreign Quarantine, U. S. Public Health Service, and Dr. Gilbert L. Dunnahoo as Chief of Medical Programs, FSA Region X, San Francisco. The appointments have been made by the Surgeon General of the Public Health Service, Dr. Leonard A. Scheele.

As Chief of Foreign Quarantine, Dr. Spencer heads the agency responsible for preventing the importation of infectious diseases into the United States and for the medical examination of aliens requesting admission into this country. The Division operates 243 stations at seaports, airports and points of border crossing in the United States and its possessions. Offices are also maintained at 24 United States embassies and consulates. During the past fiscal year, ending July, 1951, more than 31 million persons were checked by Quarantine; 28,000 planes and 20,000 ships were inspected. Not one single case of a quarantinable disease was imported into the country.

As Chief of Medical Programs for FSA's Region X, Dr. Dunnahoo will be responsible for programs on tuberculosis control, venereal disease, heart disease, cancer, environmental health, and public health nursing, which are now being operated in cooperation with the states and territories. Region X includes California, Arizona, Nevada, Oregon, Washington, Hawaii and Alaska.

VETERANS ADMINISTRATION

The appointment of Dr. George Marshall Lyon, founder and director of the extensive radioisotope program in Veterans Administration hospitals, as Assistant Chief Medical Director for Research and Education, was announced February 5, 1952 by Carl R. Gray, Jr., Administrator of Veterans Affairs.

Dr. Lyon replaces Dr. E. H. Cushing, who resigned March 1. Dr. Lyon was senior research assistant to Dr. Cushing.

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WILLIAM DEBERNIERE MACNIDER

(1881-1951)

William deBerniere MacNider, son of Virginus St. Clair and Sophia Beatty (Mallett) MacNider, was born in Chapel Hill, North Carolina, June 25, 1881, and died in Chapel Hill, May 31, 1951.

He received his elementary education in the schools of his home town, and his college and professional training at the University of North Carolina. After three years of study in college and the preclinical medical school at Chapel Hill, he transferred to the clinical school of the University that had just been established at Raleigh. He graduated there with the first class of young men to receive degrees of Doctor of Medicine from that institution. His professional education was extended during some subsequent summers through study at the University of Chicago and Western Reserve University.

Throughout most of his life Dr. MacNider was a member of the faculty of the University of North Carolina, being successively assistant in biology (1899-1900), assistant in anatomy (1900-1902), assistant in clinical diagnosis (1902-1905), professor, Kenan professor, and Kenan research professor of pharmacology (1905-1950). He retired as emeritus professor in 1950. From 1937 to 1940 he was dean of the medical school.

Will MacNider's achievements and the force and charm of his personality were recognized by honorary degrees from Davidson College and the Medical College of Virginia, by memberships and official posts in scientific and social groups, and by medals and lectureships. He was a member of the American College of Physicians, the National Academy of Sciences, the American Philosophical Society, and many other scientific organizations. He served as president of the American Society for Pharmacology and Therapeutics, the Medical Society of

North Carolina, the Elisha Mitchell Scientific Society, the Society of Experimental Biology and Medicine, the International Anesthesia Research Society, and the Gerontological Society. He was awarded the Gibbs prize of the New York Academy of Medicine, the Research Medal of the Southern Medical Association, and the Kober Medal of the Association of American Physicians.

Dr. MacNider's principal contributions to creative scholarship may be grouped into five categories:

1. The production of various forms of acute and chronic nephritis with cytologic study of the types of injury and of the processes of repair.
2. Disturbances in the acid-base balance in the blood in experimental nephritis during anesthesia and intoxication by salts of heavy metals.
3. The influence of lipid accumulations within renal cells upon the susceptibility of the cells to the toxicity of anesthetics together with demonstration of the ability of alkalies or glucose to decrease that susceptibility.
4. Studies of the factors of age in the response of animals to normal and abnormal influences.
5. Evidence that when certain epithelial tissues are severely injured by toxic agents, the succeeding repair process forms a typical, yet functionally effective type of cell with an acquired resistance to the chemical agent of injury and other agents of different chemical order.

Being the son of a physician and the grandson of a physician, and living in Chapel Hill at a time when the ferment of modern science was becoming active there, it seems that heredity and environment conspired to make Will MacNider a medical scientist.

As a boy he was interested in nature and as a young undergraduate he acquired an enthusiasm for science. He has said that his enthusiasm was sparked by the study under the microscope of a living kidney tubule of an earthworm. Many another young student has been thrilled by the sight of life in operation on the cellular level, but for young MacNider the thrill was seed in good ground. The spectacular sight of the earthworm's nephridium fired him with a strong inspiration that led on to a passion for searching the secrets of organs, of cells, of tissue fluids, of organisms — to a lifetime of research devoted principally to a study of the function and pathology of the kidney. Although this line of research was never abandoned, his interests broadened to encompass an interest in the fundamental nature of the vital processes of organisms and their philosophical implications.

He was fortunate in early coming under the stimulating influence of some of the inspiring pioneers of science of 50 years ago. H. V. Wilson and Richard Whitehead of Chapel Hill, S. A. Matthews of Chicago, G. N. Stewart and Torald Sollman of Cleveland, and Thayer and Osler of Johns Hopkins University were men with whom he was briefly or long associated and from whom he drew inspiration and stimulus during his early years. His own eagerness and industry in the exciting search for new truth have contributed largely to the intellectual climate of this University throughout the fifty years that he was a part of it.

The list of his publications supplies ample testimony to his untiring activity and his wide interests. His published contributions to science and teaching are on deposit in the medical library. They consist of 20 volumes of bound reprints, a gift from him to the library about a year before his death. His interest in the library was further demonstrated from time to time by gifts of books and journals, by the gift of his extensive collection of reprints from investigators all over the world, and by the bequest in his will of the scientific books remaining in his considerable library.

Although he valued highly the friendship and acclaim of his professional colleagues and contemporaries, his greatest reward was the esteem and affection in which he was held by students that passed under his tutelage. His zest for learning could not make

a recluse of him because it was accompanied by an equal zest for companionship that drew students to him in lifelong friendships.

Research and teaching occupied most of his time and energies, and yet enough was left over for a live and active interest in his home, which was the center for much pleasant hospitality. Work in his garden filled the place that sports fill in many men's lives. Gifts of flowers to neighbors and local friends were a frequent occurrence, and many acquaintances throughout the country have had their hearts gladdened and their gardens beautified through gifts of flower seeds from his garden.

Throughout his career he remained profoundly interested in the methods and problems of medical education and in the practical as well as the philosophical implications of scholarships. In the council chamber and committee room he was a forceful exponent of his views, and his opinions were sought and weighed with interest by antagonists as well as by supporters.

Although intensely interested in his own thoughts and his own affairs, Will MacNider had a keen interest in the work, the pleasures, and the sorrows of those with whom he came in contact. He contributed to their pleasures and knew how to be of help in their sorrows. His death leaves a gap in the domain of science and in the lives of hosts of friends.

W. C. GEORGE.

New and better drugs for combatting bacterial diseases may be expected. I envisage the gradual replacement of the drugs which must be administered intravenously or intramuscularly by others of equal or greater potency which may be taken orally. Many of the most stubborn diseases of mankind are those caused by viruses, such as the common cold, poliomyelitis, spinal meningitis, influenza, virus pneumonia, mumps, and measles. Satisfactory drugs for their treatment are lacking. The retarded progress in this field in contrast to that made in the study of bacterial diseases is the result of the absence of suitable laboratory or animal assay methods for determining the effectiveness of any chemical agent upon a particular virus. Bacteria can be grown in the laboratory, but viruses propagate only within living bacteria or living cells. Research in the next decades will solve the vexing problem of finding viruses, and thus open a new chapter in medical therapy.—Roger Adams: *Man's Synthetic Future*, Science 115:163 (Feb.) 1952.



William DeBerniere MacNider, M.D.
1881 — 1951

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NEWER ASPECTS OF LIPID METABOLISM IN ATHEROSCLEROSIS

FRED W. ELLIS, PH.D., M.D.

CHAPEL HILL

For many years interest in the metabolism of blood lipids was focused upon the well established observations that hypercholesterolemia tends to occur in a variety of clinical conditions. It has been associated not only with so-called "senile arteriosclerosis" but also with certain other diseases, especially diabetes mellitus, nephrosis, hypothyroidism, and primary xanthomatosis, all of which are known to predispose to premature atherosclerosis.

Gradually, however, it has become apparent that there is no predictable relationship in man between the height to which the blood concentration of cholesterol rises and the severity of the atheromatous lesions. Furthermore, it is not uncommon for the atherosclerotic process to develop even though the serum cholesterol value is within the so-called "normal" range. Accordingly, many recent investigations have been concerned with other aspects of cholesterol metabolism involving the physico-chemical interrelationships of this sterol with certain other blood constituents. The evidence accumulating from this work suggests that a disturbance in lipid metabolism in general, rather than cholesterol alone, may occur in the patient who shows an atherosclerotic tendency.

The intention of this review is to present some of the newer knowledge of these metabolic changes which appear to be related to the development of experimental and human atherosclerosis. It is recognized here that many influences undoubtedly are involved in the pathogenesis of this disease, but a discussion of other possible etiologic factors and general features of atheromatosis will not be attempted.

Production of Experimental Atherosclerosis

Since the initial observation by Anitschkow⁽¹⁾ that cholesterol feeding led to the development of atheromatous lesions in rabbits, several additional species have been found to exhibit varying degrees of this susceptibility. At the present time, the rabbit,

chicken, and dog are used most frequently for the production of an atherosclerotic state which resembles the biochemical and pathologic characteristics of human degenerative vascular disease. Inasmuch as some of the data to be discussed have been derived from studies of animals, it seems desirable to comment briefly on some of the procedures used to produce this experimental condition.

Rabbits are particularly sensitive to exogenous cholesterol. The ingestion of this sterol for several weeks usually produces a marked elevation of serum cholesterol, which is disproportionate to the increase in other serum lipid fractions, and a subsequent development of localized atheromatous lesions, especially in the arch and thoracic portion of the aorta⁽²⁾. The opinion has been expressed, however, that these studies may not be pertinent to man, since the herbivorous rabbit does not normally ingest cholesterol and probably has a very low metabolic capacity for its disposal. Nevertheless, investigations in this species have yielded valuable data relative to the general nature of atherosclerosis.

Katz and co-workers⁽³⁾ have demonstrated that the chicken, an omnivorous animal, upon ingesting a cholesterol-fortified diet, readily develops atheromas which resemble human lesions much more closely in character and distribution than do those in rabbits. In virtually every case, the level of serum cholesterol and incidence of atherosclerosis were related directly to the amount and duration of cholesterol intake. On the other hand, induced lesions occurred in some chicks with minimal hypercholesterolemia⁽⁴⁾, while many aging chickens, even on a low-fat, cholesterol-free diet, developed spontaneous lesions⁽⁵⁾ which were similar to those induced by cholesterol. These workers have shown also that estrogen administered to cholesterol-fed chickens inhibited coronary, but not aortic atheromatosis⁽⁶⁾, whereas estrogen treatment alone resulted in a delayed appearance of hypercholesterolemia and ultimate development of atheromatous lesions⁽⁷⁾.

Feeding cholesterol to normal dogs does not usually elevate blood cholesterol or produce atherosclerosis. Steiner and Kendall⁽⁸⁾ discovered, however, that thiouracil suppression of thyroid function along with cholesterol feeding for several months did result in the development of high serum cholesterol and atheromatous lesions. These le-

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sions have the same distribution and sites of predilection, as well as most of the morphologic features, as those which occur in man. Recent data suggest that incipient spontaneous changes in the intima of aging dogs may be analogous to lesions induced by the cholesterol-thiouracil regimen⁽⁹⁾. Conversely, thyroid hormone decisively retards hypercholesterolemia and atherosclerosis in cholesterol-fed and estrogen-treated animals⁽¹⁰⁾.

Present Status of Hypercholesterolemia

Relation to diet

It is obvious that the hypercholesterolemia of experimental atherosclerosis is induced by excessive cholesterol intake, although, as previously mentioned, simultaneous thyroid depression is necessary in dogs. In man, it is less certain what role the consumption of a cholesterol-rich diet plays in raising the blood concentration. A clear interpretation of this point is complicated by the fact that cholesterol is synthesized in the body. Furthermore, the "normal" range of serum cholesterol in human subjects is quite wide.

One view held⁽¹¹⁾ is that dietary cholesterol exerts an important influence on blood concentration and ultimately on the development of atherosclerosis. However, many other workers share a more recent opinion which opposes this hypothesis. For example, Keys⁽¹²⁾ studied the influence of diet on blood cholesterol levels in 482 "clinically normal" men ranging in age from 18 to 55 years. His results show that if the habitual daily intake stays within a range of 250 to 800 mg. of cholesterol, there is no significant relationship to serum concentration. In one group of 41 men who had a mean initial value of 250 mg. per 100 ml., 50 per cent reduction in dietary cholesterol for several months failed to change the control level. However, on the Kempner rice diet⁽¹³⁾, which is cholesterol-free and nearly fat-free as well, the mean value fell from 323 mg. per 100 ml. to 151 mg. per 100 ml. within three weeks. Keys concludes that "the blood cholesterol level is independent of the intake over a wide range, but that at zero intake it falls at a rate related to the previous serum level."⁽¹²⁾

Furthermore, Gertler, Garn, and White⁽¹⁴⁾ found no correlation between the amount of ingested cholesterol and the serum concentration in a study of 139 healthy men and 90 males who had experienced myocardial

infarction. The habitual cholesterol intake of the control group was significantly higher than that of the coronary patients. Also, Steiner and Turner⁽¹⁵⁾ were unable to detect significant changes in serum cholesterol within 24 hours after a single large meal rich in cholesterol and fat. Their results were similar when high and low cholesterol-fat diets were extended over a period of several weeks.

Thus it is seen that the average cholesterol intake, and probably the low-cholesterol diets also, have relatively little control over the blood level, but if a stringent cholesterol-free diet be consumed regularly, an unequivocal fall in cholesterol concentration follows. In order to accomplish this result, it should be emphasized that a low-fat diet may be more important than the deprivation of cholesterol. To this end it has been shown that the serum cholesterol reduced by dietary restriction returns fairly rapidly to the original level upon the addition of vegetable (non-cholesterol) fat to the diet^(12, 16). Perhaps this can be explained on the basis that endogenous cholesterol excreted into the intestine is effectively reabsorbed only after ester formation with fatty acids⁽¹⁷⁾. It becomes clear, then, that if dietary control is to be attempted as a measure to reduce the cholesterol content of blood, a very drastic limitation of cholesterol and fat will be required.

Relation to incidence of atherosclerosis

In most instances of experimental work, elevation of serum cholesterol appears to be a prerequisite for the development of atherosclerotic lesions. The occurrence of spontaneous atheromas in chickens, and possibly in dogs, is an exception to this generalization. Much of the clinical literature indicates a definite trend toward atherosclerosis in patients who manifest hypercholesterolemia, although this relationship is not uniformly present. Several workers^(14, 15, 18) have observed an increase in mean blood level in patients with atherosclerotic disease. On the other hand, many patients so affected have serum cholesterol values within the normal range. Thus in a study of 200 consecutive patients with acute coronary thrombosis, hypercholesterolemia was present in 68 per cent of 75 patients under 60 years of age, but in 52 per cent of 125 patients over the age of 60 years, a normal cholesterol level was found⁽¹⁹⁾. Gubner and Ungerleider⁽²⁰⁾ reported the incidence of atherosclerosis to

be about the same in patients with mild hypercholesterolemia (average 300 mg. per 100 ml.) and in subjects with normal serum cholesterol (average 211 mg. per 100 ml.). Among persons showing low levels (average 160 mg. per 100 ml.) there was a significantly lower incidence.

Fluctuations in serum cholesterol may bear a more significant relationship than sustained high concentrations *per se* to the incidence of atherosclerosis. Thus Morrison and others⁽²¹⁾ reported a variation of less than 10 per cent in individual cholesterol values of normal subjects over a period of one year, whereas there were wide deviations in the levels of 50 patients with recent coronary thrombosis. Steiner⁽¹⁵⁾ also observed a similar variation in individual atherosclerotic patients. These data are compatible with the view⁽²²⁾ that human atherosclerosis may advance in stages as the result of repeated insults, rather than as a gradually progressive deterioration.

The fact that a higher incidence of atherosclerosis occurs in individuals who exhibit some derangement in cholesterol metabolism is indisputable. Yet simple elevation of serum cholesterol does not appear to be the most significant factor, and, on this basis, the evidence is not sufficient to justify assumption of a causal relationship. It has been suggested⁽²⁰⁾ that perhaps hypercholesterolemia is only a manifestation of an existing metabolic abnormality, the most outstanding stigma of which is the causation of atherosclerosis.

Physico-Chemical State of Blood Lipids

From the foregoing discussion it seems evident that the serum cholesterol concentration alone has proven to be an unreliable criterion of the incidence or severity of atherosclerosis and, indeed, has failed to provide the etiologic clue to this disease. It seems to be equally true that mere concentration of any serum lipid is meaningless. As an alternative approach to the solution of this problem, research efforts in general have shifted to a rather intensive investigation of the physico-chemical state of blood lipids, with particular reference to their particle size and the nature of their interrelated functions. Hueper⁽²³⁾ has emphasized the possible etiologic significance of large colloidal particles in the blood stream. He demonstrated, by intravenous injection into ani-

mals, that polymers of high molecular weight substances ("macromolecules"), such as polyvinyl alcohol, methyl cellulose, pectin and acacia, gradually accumulated in the arterial intima and gave rise to lesions morphologically similar to those of atheromatosis.

Subsequent investigations seem to confirm this general concept to the extent that coarse particulate distribution of serum lipids apparently predisposes to their intimal deposition and, thereby, probably plays an important role in the inception of atheroma formation. Some of the current ideas relating to this concept of the initiation of atherosclerosis will be presented now.

Cholesterol-phospholipid ratio

Many recent studies have called attention to the possibility that the relative concentration of phospholipids assumes a dominant role in stabilizing the colloidal serum lipids. This relationship is usually represented by the *ratio* between the concentrations of cholesterol and phospholipids. Normally this value is approximately 1 when cholesterol is expressed as milligrams per 100 ml. and phospholipids are expressed as lecithin milligrams per 100 ml. (The phospholipid value may be obtained by multiplying serum lipid phosphorus by a factor of 25.)

Davidson, Abell, and Kendall⁽²⁴⁾ believed a shift of the cholesterol-phospholipid ratio from 1 in young dogs on a normal diet to 5 in animals on a cholesterol-thiouracil regimen was closely associated with the development of atherosclerosis in the latter. They observed a marked hypercholesterolemia and a less marked rise in phospholipids which resulted in an elevation of the ratio.

It has been reported⁽²⁵⁾ that the intravenous injection of certain synthetic detergents (Tween 80 and Triton A-20) in cholesterol-fed rabbits produced a sustained elevation of serum phospholipids which kept pace with the anticipated hypercholesterolemia. In these animals the normal ratio was preserved, and there was a significant decrease in the incidence and severity of atherosclerosis as compared with the uninjected cholesterol-fed controls. Payne and Duff⁽²⁶⁾ recently expressed doubt that this inhibitory effect is due merely to elevation of phospholipids, but believed that Tween 80, owing to its prolonged stay in the blood stream, might prevent the development of experimental

atherosclerosis through a mechanism independent of lipid changes.

It has been shown by Duff and McMillan⁽²⁷⁾ that alloxan diabetes completely inhibits the usual cholesterol-induced atherosclerosis in rabbits. This experimental observation is at variance, of course, with the evidence in man that diabetes mellitus favors the early development of atheromatosis. However, this unanticipated response has been confirmed⁽²⁸⁾ and seems well established. In these animals hypercholesterolemia developed in the characteristic manner, but it was accompanied by a commensurate elevation of phospholipids. The mechanism by which atherosclerosis was inhibited appeared to be related to the maintenance of the cholesterol-phospholipid ratio in spite of the high rise in serum cholesterol⁽²⁹⁾. Insulin regulation of the diabetic state abolished the inhibitory effect and atherosclerosis developed as in the nondiabetic cholesterol-fed rabbits⁽³⁰⁾.

According to the data of Pomeranze and Kunkel⁽³¹⁾, in human diabetes there is a better correlation of the incidence of atheromatous lesions with an increased cholesterol-phospholipid ratio than with either hyperlipemia or elevated serum cholesterol. Hence, it appears that, regardless of the peculiar difference in influence of diabetes and its control in experimental and human atherosclerosis, an important determinant in the development of atheromatous lesions is the extent to which the normal cholesterol-phospholipid ratio becomes altered.

On the basis of lipid-pattern determinations in several conditions associated with hyperlipemia, it has been shown^(18, 32) that the cholesterol-phospholipid ratio is elevated above normal in those cases that commonly display atherosclerosis (cholesterol-fed rabbit, hypothyroidism, essential xanthomatosis, nephrosis), whereas in biliary obstruction, a condition in which the incidence of atherosclerosis is not increased although characteristically a marked hypercholesterolemia is present, there is a very significant reduction in this ratio. Gertler and co-workers⁽³³⁾ have found an increase in this ratio also in patients with coronary artery disease. They advanced the hypothesis that the levels of serum cholesterol and phospholipids as independent values are less important in atherosclerosis than is the ratio of cholesterol to phospholipid.

During prolonged estrogen administration to chicks, atheromatosis was retarded initially, presumably by a predominant rise in phospholipids. However, atherosclerosis developed eventually in the presence of a persistent hypercholesterolemia^(10b). When cholesterol feeding and estrogen injection are combined, a parallel increase in cholesterol and phospholipids occurs and the ratio remains normal⁽⁶⁾. Under the latter conditions coronary atherogenesis is inhibited. Eilert⁽³⁴⁾ observed a decided drop in the cholesterol-phospholipid ratio of female patients during estrogen therapy. She feels that the lower incidence of coronary artery disease in women before onset of the menopause might be attributable to higher estrogen activity.

Thus a great deal of evidence is available to favor the concept that phospholipids, being hydrophilic, are capable of holding in suspension the hydrophobic lipids, and hence, of maintaining these colloidal particles in a finely dispersed state. The proponents of this theory feel that the simple elevation of cholesterol or total lipids is not detrimental so long as there is a concomitant rise in phospholipids, with no increase in the cholesterol-phospholipid ratio.

Chylomicronemia

Normally in the fasting state, or after a fat-free meal, fat particles are relatively few in number and small in size in human serum when examined by dark-field microscopy or measured by the technique of nephelometry. However, following the absorption of fats from the intestinal tract, there appear in the serum relatively large and numerous particles which are called "chylomicrons"⁽³⁵⁾. These particles are not a reflection of the serum lipid concentration, but represent an alteration in the physical state of absorbed fat.

The intensity and duration of this postprandial hyperchylomicronemia vary not only with the amount of ingested fat, but with certain other seemingly significant factors. Becker and others⁽³⁶⁾ reported that young normal individuals showed only a moderate chylomicronemia which usually disappeared within three to five hours following the ingestion of a standard fat meal. They observed an increase in intensity and duration with advancing age, and in patients over 50 years of age the chylomicron count was very high and gradually disappeared only after 24 hours. In this older age

group it was predicted that under the influence of regular eating habits these subjects would carry a persistent hyperchylomicronemia from meal to meal.

Moreton, who recently revived interest in chylomicrons by postulating their possible role in the pathogenesis of atherosclerosis, has observed a sustained hyperchylomicronemia in cholesterol-fed animals and in patients afflicted with diseases associated with the atherosclerotic process⁽²²⁾. Zinn and Griffith⁽³⁷⁾ have confirmed this observation in victims of myocardial infarction and in diabetic persons of random selection. In the fasting sera of these patients, chylomicrons constituted over half the number of fat particles detectable by dark-field illumination. Moreton believes that the increase in chylomicrons accompanying alimentary hyperlipemia is essentially indistinguishable from the chylomicronemia of experimental and human atherosclerosis. Accordingly, he has advanced the theory that "the gradual development of atherosclerosis in otherwise normal human beings may be the direct result of recurrent alimentary chylomicronemia due to repeated ingestion of many fatty meals over a lifetime." It is postulated further that these coarse cholesterol-containing lipid particles become entrapped in the arterial intima, from which location neutral fats and fatty acids are more easily removed than cholesterol, and, consequently, the latter substance accumulates at the sites of potential atheromas.

More recently Moreton has described a fat tolerance test which constitutes a method for determining the chylomicronemic response to ingested fat⁽³⁸⁾. This response shows a wide variation among normal persons, but tends to remain in a specific individual relatively constant over a period of months. By this test serum cholesterol and chylomicronemia do not correlate well, although some degree of hypercholesterolemia is usually present in patients who show an increase in chylomicrons. Many atherosclerotic patients show poor tolerance to ingested fats, and elimination of these dietary items usually results in a rapid and marked reduction in the "natural" chylomicron curve even when the habitual level is quite high.

Lipoproteins

A significant recent contribution is the work of Gofman and colleagues⁽³⁹⁾, who have used the ultracentrifuge and a special flota-

tion technique to demonstrate the presence in serum of certain newly defined lipid-bearing giant molecules which show a remarkable correlation with the incidence of experimental and human atherosclerosis. According to this work, "essentially none of the serum cholesterol circulates as individual molecules of either free or esterified cholesterol but instead is present in the form of very large molecules containing cholesterol and other lipids in association with variable amounts of proteins." These lipoproteins are segregated on the basis of their relative densities and are classified as Sf molecules (Svedberg units of flotation) according to their characteristic flotation rates. At the present time, characterization has been accomplished for discrete components occurring at frequent intervals from Sf 2 through Sf 17, and for a homogeneous series between Sf 17 and Sf 40,000.

In human sera, classes of giant molecules representing the whole gamut of the lipoprotein spectrum have been identified^(39c). Age and dietary habits appear to modify a particular individual's capacity to metabolize lipids, which is thought to determine his lipoprotein pattern. Molecules as high as Sf 8 are considered "normal" in young human subjects under the age of 25 years. Beyond this age there was a variable increase in abnormal molecules of higher Sf values in persons representing the general population. The ingestion of fatty meals was followed in most subjects by serum elevation of various abnormal giant molecules. Whether this becomes a transient or sustained phenomenon in a given person appears to depend upon the integrity of his lipid metabolic mechanism.

By far the most significant group of lipoproteins in man is the Sf 12-20 class, the serum concentration of which correlated strikingly with the incidence of atherosclerosis in a large number of patients with coronary artery disease, diabetes mellitus, nephrosis, and hypothyroidism. No other class of molecules exhibited this relationship. Cholesterol levels were related to atherosclerosis in these patients only to the extent that Sf 12-20 molecules contained the major fraction of the serum concentration.

The opinion is held by Gofman that the serum level of Sf 12-20 molecules in apparently normal individuals is of diagnostic

value in predicting their likelihood of developing a clinical manifestation of atherosclerosis. Furthermore, it is believed that this criterion has prognostic significance in patients who have already displayed evidence of this disease. In patients with coronary disease, recurrent myocardial infarction occurred earlier if high levels of these lipoproteins were maintained, whereas there were fewer recurrent episodes in those individuals whose serum levels were reduced by prophylactic measures.

In rabbits, normal lipoproteins are represented by classes up through Sf 8-10. During cholesterol feeding experiments, these molecules increased to a certain concentration, and then lipoproteins of higher Sf values began to appear^(39a). These atypical classes are thought to indicate an "overflow" above the normal capacity of the rabbit to metabolize excessive cholesterol. Throughout these experiments there was an extremely high correlation between the concentration of Sf 10-30 molecules and the severity of atherosclerosis. In fact, an occasional animal failed to develop an appreciable level of this type molecule and, at autopsy, exhibited only minimal atherosclerotic lesions. As in the human, cholesterol levels were related to atherosclerosis only insofar as the incriminated molecules accounted for a high proportion of the total serum cholesterol.

These workers have demonstrated two procedures, dietary restriction and heparin administration, which appear to shift an atypical lipoprotein pattern in the direction of normalcy. On a low-fat, low-cholesterol diet for 16 weeks, normal subjects showed a consistent trend toward a lower level of abnormal molecules, and within four weeks after termination of the diet, this level began to rise toward the initial concentration. Reduction in total fat intake during a period of one year resulted in an appreciably lower blood level of Sf 12-20 substances in one group of patients with myocardial infarction. In this group there was significant protection against recurrent infarction.

Heparin administration^(39c, 40) to cholesterol-fed rabbits was associated with diminution in concentration of Sf 10-30 molecules and a conspicuous inhibition of atherosclerosis. In man, heparin injection was followed by depletion of molecules above Sf 20, a marked decrease in the Sf 10-20 class, and a rise in concentration of molecules below Sf 10. Simultaneously, heparin afforded

symptomatic relief in patients with severe angina pectoris. This relief was of sufficient duration to suggest a third mechanism independent of the known anticoagulant and vasodilator effect of this drug. The true implication of this observation and the involved mechanism await clarification.

There has emerged from these studies the concept that abnormal lipoproteins are products of aberrant pathways of lipid metabolism, and that a sustained serum elevation of molecules with higher Sf values than those of the normal range probably is indicative of an error in the normal metabolic pattern. Furthermore, there is thought to be a parallel between the sequential appearance (and concentration) of higher Sf molecules and the progressive severity of the impaired metabolism. Inasmuch as certain types of abnormal molecules can be correlated significantly with the incidence of both experimental and human atherosclerosis, it has been postulated by Gofman that these particular lipoproteins play a fundamental role in the genesis of atheromatosis.

In his critical analysis of Gofman's data, Keys⁽⁴¹⁾ claims that Sf 12-20 blood levels correlate no better than serum cholesterol values with the degree of atherosclerosis. Indeed Keys doubts that giant molecules have any special significance beyond that for simple cholesterol measurements in the prediction or detection of atherosclerotic activity. With this opinion Keys occupies a minority position, inasmuch as these ultracentrifugal studies are considered generally to represent a signal advance in the over-all effort to bring atherosclerosis within the sphere of human comprehension.

Summary

It seems apparent now that there is no consistent correlation between the serum cholesterol concentration and the incidence of atherosclerosis. Consequently, the fundamental predisposing factor in this disease is no longer considered to be a matter of impaired cholesterol metabolism alone. On the other hand, it is becoming more evident that a disturbance in lipid metabolism in general is involved in this pathogenic process.

Recent studies indicate that the various lipid and lipoprotein components of serum are transported normally in a physico-chemical state of equilibrium which maintains lipid material in a finely dispersed stable

"emulsion." It is believed that any deviation from normal lipid metabolic pathways of sufficient magnitude to unbalance this stabilizing mechanism results in the aggregation of abnormal colloidal lipid-bearing particles which are susceptible to deposition in the arterial intima.

At least three indications of such a metabolic defect have been related recently to the etiology of atherosclerosis. These are (1) elevation of the serum cholesterol-phospholipid ratio, (2) sustained chylomicronemia, and (3) certain abnormal serum lipoproteins in the form of giant molecules. The etiology of the faulty mechanism which produces these changes is obscure at the present time. However, involvement of some hormonal deficiency or imbalance is suggested by the close association of degenerative vascular disease with certain states of altered endocrine function, and by increasing evidence that the metabolism of lipids is influenced by the action of various hormones.

Thus it is possible that atherosclerosis may be shown ultimately to be a metabolic disease initiated by abnormalities in lipid metabolism which result from certain endocrine dysfunctions. Under these conditions, an excessive fat intake imposed on a pre-existing metabolic deficiency in a given individual might become an important determinant of his susceptibility to atherosclerosis. In this connection, it has been demonstrated that certain atherosclerotic patients benefit from dietary restriction of fats. This metabolic concept does not exclude contributions of other factors to the pathogenesis of this disease.

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LABORATORY DIAGNOSIS OF LYMPHOGRANULOMA VENEREUM

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During the past decade evidence has accumulated which indicates that the incidence of infections by the virus of lymphogranuloma venereum is considerably greater than previously reported. Procedures for isolation of the virus and serologic diagnosis have been improved, and several studies indicate a high specificity for such tests. A review of the techniques now available for general use, and a new emphasis on the widespread occurrence of this infection appear desirable.

Lymphogranuloma venereum, also called climatic bubo, lymphogranuloma inguinale, and so forth, is an infectious disease caused by a virus of the psittacosis-lymphogranuloma venereum group. Most of these agents are primarily parasitic in birds, being occasionally transmitted to man with a resultant pneumonitis. Lymphogranuloma venereum however, occurs in nature exclusively in man, where it is transmitted usually by sexual contact. In typical cases infection by this virus is followed by the appearance of rather small solitary primary lesions on the shaft, corona, frenum, or prepuce in the male, and on the labium minus, vaginal wall, or cervix in the female. These lesions are small and may remain unnoticed, or may not occur.

The secondary manifestations are usually limited to the lymphatic network associated with the genitalia. The most common such lesions in the male are slowly developing inguinal buboes. In a considerable number of cases these lymph nodes suppurate. In the female, the infection may spread from vaginal and cervical lesions to the pelvic lymph nodes, following which such manifestations as rec-

tal strictures and fistulas may occur. In both sexes, acute systemic, ocular, respiratory, and central nervous system infections have been reported.

Incidence

The evidence that infections by this virus may be asymptomatic or occur with a minimum number of symptoms should be emphasized, however. Beeson and Miller⁽¹⁾ have presented serologic evidence of past or active infections in 40 to 45 per cent of Negro patients above the age of 15 years. Of 497 patients of all ages in their group, 33 per cent showed evidence of contact with this virus. A considerably lower but significant incidence was found in white patients. In each group, there was a sharp increase in incidence above the ages of 15 to 20 years. Approximately 60 per cent of the sera from colored patients with a positive serologic test for syphilis were positive in the complement fixation test for lymphogranuloma venereum.

The frequent concurrence of lymphogranuloma venereum and other venereal diseases has been shown by other investigators also. Shaffer and Rake⁽²⁾ reported that complement fixing antibodies for lymphogranuloma venereum were seldom found in sera from persons with congenital syphilis, but 57 of 97 patients with acquired syphilis, 3 of 6 with chancroid, and 9 of 19 persons with gonorrhea showed serologic evidence of infection by lymphogranuloma venereum. Wall, Heyman, and Beeson⁽³⁾ reported that over one half of a group of 45 patients with proved chancroid likewise gave evidence of past infection by lymphogranuloma venereum, as shown by results of the complement fixation test.

Wright and his associates⁽⁴⁾ reported the incidence of positive skin tests and serologic tests as about 28 per cent in 1192 Negro patients and 18 per cent in 192 white patients admitted to a municipal hospital. Forty-two per cent of 451 Negro factory workers in Virginia recently tested by Luger⁽⁵⁾ were found to give positive complement fixation tests, with 14 per cent of these persons having titers of 1:40 or greater. Comparable results have been reported by Wetherbee and associates⁽⁶⁾.

Specific Laboratory Diagnostic Techniques

Three specific methods of value in the diagnosis of lymphogranuloma venereum have

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been developed. These are direct isolation of the virus, the complement fixation test, and the skin test. The latter method, though not a laboratory procedure, is reported here because of its relation to the serologic status of the patient.

Virus isolation

Pus and biopsy material containing the virus are infectious for mice following intracerebral inoculation, and for the chick embryo following injection into the yolk sac. Rake⁽⁷⁾ suggests the addition of 1,000 units of penicillin and 3,000 units of streptomycin per milliliter of the specimen when bacterial contamination is encountered. As the virus may fail to produce visible signs of infection in the first passage in either mice or eggs, subsequent blind passages should be made. If the virus is not established by the second or third passage, further attempts are generally useless. Wall⁽⁸⁾ has found that mouse inoculation is preferable, as mice are more resistant to bacterial contamination in the inoculum than are chick embryos, and generally show earlier signs of infection.

This method is somewhat expensive and time-consuming, of course, and is not practicable except in properly equipped laboratories. The virus is highly infectious for laboratory workers, and should be handled only with proper facilities and by experienced personnel.

Skin test

Frei⁽⁹⁾ discovered in 1925 that the injection of heated bubo pus from a patient with this disease into other infected individuals provoked a sensitivity reaction similar to the tuberculin reaction. Infected mouse brain antigens have likewise been suggested but have proved unsatisfactory owing to non-specific reactions as shown by control injections of normal mouse brain antigens. The material in general use today for the skin test consists of killed virus prepared from infected chick embryo yolk sacs. Control antigen prepared from normal yolk sacs should always be injected simultaneously with the virus antigen.

The test consists of the intradermal injection of 0.1 ml. each of virus antigen and control antigen in the flexor surface of the forearm. Readings are made after 48 hours. The surrounding erythema should be ignored and only the central papule measured.

In the absence of sensitivity to the normal antigen, a papule of 6 mm. or greater in diameter is significant⁽⁷⁾

In general it appears that the skin test becomes positive after complement fixing antibodies are detectable, but remains positive for many years or for life. The specificity of this test, especially in individuals with syphilis, has been challenged by Knott and associates⁽¹⁰⁾. Other evidence^(4, 11), however, indicates that with the use of control antigens the specificity is high, although the sensitivity may be less than that of the complement fixation test.

Because of the common or group antigens in the psittacosis-lymphogranuloma venereum group of viruses, persons infected with psittacosis may show a positive skin test. Bedson and colleagues⁽¹²⁾ have prepared acid-extracted antigens of both lymphogranuloma venereum and psittacosis viruses which are highly specific. They found no cross reactions in a small series of patients with either psittacosis or lymphogranuloma venereum.

Complement fixation test

The most useful laboratory procedure for diagnosis of this disease is the standard complement fixation test. Virus suspensions or extracts from infected yolk sacs are used as antigen. As in the Frei test, control tests using normal yolk sac antigen prepared in the same manner as the virus antigen should be made.

To perform the test, the antigen should be adjusted to give definitely positive fixation with known positive sera and no anti-complementary effect. Sera should be inactivated immediately before use, and twofold dilutions beginning at 1:2 prepared in saline. All reagents and sera are used in 0.2 ml. amounts. The antigen and 2 units of complement are added to the serum dilution. Following incubation in the water bath for 75 minutes at 37 C., 0.2 ml. of 3 per cent sheep cells sensitized with 2 units of hemolysin is added. Readings are made following an additional incubation at 37 C. for 30 minutes. Control tubes with normal yolk sac antigen and the usual complement and antigen controls should always be included⁽⁷⁾.

The specificity of this test also was challenged by Knott and associates⁽¹⁰⁾, who found numerous patients with a complement fixation titer with no history of infection. False positive tests were reported to be especially

prominent in persons with early syphilis. The sera of these patients will usually react with both normal and virus antigens, however, as will the sera of a small number of individuals with apparent sensitivity to various constituents of normal yolk sac. Positive complement fixation tests are significantly more common in Negro patients with syphilis than in white patients with syphilis⁽¹⁾. If the test is nonspecific in the presence of syphilis, comparable nonspecific reactions should occur, it seems, regardless of race.

In a study by Shaffer and Rake⁽²⁾ similar conclusions were reached. In a group of children with non-venereal gonorrhea, none were found to give a positive lymphogranuloma venereum complement fixation test, whereas 9 of 19 adults with venereally acquired gonorrhea gave a positive test. Only 2 of 34 persons with congenital syphilis showed evidence of lymphogranuloma venereum infection, whereas 57 of 97 persons with acquired syphilis did show such evidence.

In an informative study by Wall, Heyman, and Beeson⁽³⁾, 27 patients with proved lymphogranuloma venereum infection and 45 patients with proved chancroid were studied. Over one half of the latter patients showed complement fixing antibodies for lymphogranuloma venereum, although in low titer. All of the patients with lymphogranuloma venereum showed titers within the range of 1:40 to 1:640. Approximately one year after infection, however, the titers found in these patients were comparable to the low titers found in the group with chancroid.

The complement fixation test may be negative in early infection, and considerable information can be obtained by repeated tests⁽¹¹⁾. There is increasing evidence that greater specificity is possible when quantitative tests are performed. Dulaney and Packer⁽¹³⁾ conclude that titers of 1:40 or greater indicate active infection and that titers of 1:5 may be nonspecific. Similar conclusions have been reported by others^(6, 12). The technique of Bowser and Nigg⁽¹⁴⁾ of preparing boiled phenol-treated supernatant antigens reduces the nonspecific reactions seen with sera from patients with syphilis.

The antigens used in the lymphogranuloma venereum complement fixation test do react specifically with sera from patients

with psittacosis and similar infections. Attempts to prepare specific antigens for lymphogranuloma venereum which do not cross-react with such sera have been reported⁽¹²⁾. At least two complement fixing antigens are present in the elementary bodies of these viruses⁽¹⁵⁾. The heat stable antigen reacts almost equally well with sera against any member of the group. A heat labile antigen with apparent specificity is also present. When sera of patients with lymphogranuloma venereum infections are absorbed with heated suspensions (group antigen) of either psittacosis or lymphogranuloma venereum virus, and subsequently tested by the complement fixation technique using fresh unheated virus suspension (specific and group antigen) as antigen, specific results are obtained and cross reactions do not occur.

Summary

1. Lymphogranuloma venereum is a common infection, particularly in Negroes, and may occur with a minimum number of early symptoms.
2. The specific laboratory procedures used in the diagnosis of lymphogranuloma venereum have been reviewed and evaluated.
3. Available evidence indicates that the skin test and complement fixation test are specific and sensitive procedures for diagnosis.
4. Standard procedures and experimental techniques for the performance of these tests have been reviewed.

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ON THE PATHOGENESIS OF OBESITY

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It is axiomatic that in any argument one must define his terms. In common usage, the word "obesity" means overweight, but this concept is unsatisfactory for two reasons: (1) it implies knowledge of an ideal weight which is exceeded; and (2) a person may be overweight and yet not obese, as in severe edema. In a more exact sense, obesity refers to the presence of an excessive amount of adipose tissue. Brozek and Keys⁽¹⁾ have recently pointed out that persons of "normal" weight according to age-weight tables may differ considerably in body composition; this is strikingly seen in the relative increase in body fat content at constant weight in older persons. Hence the best estimate of obesity is one based on an actual calculation of the amount of adipose tissue in the body.

The Measurement of Obesity

Several methods have been devised for measuring the fat content of the body. Talbot⁽²⁾ suggested that the creatinine coefficient (milligrams of creatinine excreted in the urine per kilogram of body weight per 24 hours) which measures total muscle mass may be used as an indirect index of body fat, since increase in fat content depresses the creatinine coefficient. This method is extremely simple, but it has not been evaluated against more direct methods of measuring fat content. It does, however, have a potentially useful application in the determination of the "ideal" weight for purposes of calculating basal metabolic rate in obese persons (Tager and Kirsch⁽³⁾).

The first really quantitative technique for the measurement of body fat content was described by Behnke, Feen, and Welham⁽⁴⁾ in 1942. This was based on the inverse relation between fat content and body specific gravity, the latter determined by Archimedes' principle from body weight in air and under water. The validity of this method was established by comparison with the direct extraction and chemical determination of total body fat in guinea pigs (Rathbun and Pace⁽⁵⁾). It was also established (Pace and Rathbun⁽⁶⁾) that total body water is a constant fraction of fat-free body mass; fat is considered to act as a diluent of body water, and hence the two are inversely related and either may be used to calculate the other. More recently, methods have been perfected for the accurate measurement of total body water in man by the use of antipyrine (Soberman and colleagues⁽⁷⁾) and of deuterium oxide (Schloerb and others⁽⁸⁾), and satisfactory agreement has been demonstrated between values for body fat content in man derived from body water and body specific gravity measurements (Osserman and others⁽⁹⁾).

Unfortunately, neither the body specific gravity technique nor the body water technique for estimating obesity is sufficiently rapid and simple for routine clinical use. They do, however, provide useful research standards by which to judge the usual clinical criteria of obesity, such as height-weight relations, as well as the hoped-for quantitative clinical methods of the future.

Since the clinical evaluation of obesity is based largely on the relation between height and weight as given in standard tables, it may be pertinent to examine the validity of these tables. They are based on the *average* weights of large numbers of men and women for each height and age group; this method of computation ignores the very high incidence of obesity in the older age groups and results in "normal" weights which are too high. If it be granted that the "ideal" weight of a person at any age is that weight which results in the longest life expectancy, tables of "ideal" weight may be constructed; these differ considerably from the "average" weight tables. It has been shown (see Ryngerson and Gastineau⁽¹⁰⁾ for references) that "maximal life expectancy is obtained if the average weight at ages 25 to 30 years is maintained the remaining years of one's life." It is to be hoped that estimations of

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obesity from height-weight tables will, in the future, be based on tables of ideal rather than average weight. (These tables may be obtained from the Metropolitan Life Insurance Company.)

The Medical Importance of Obesity

The incidence of obesity in the general population has seldom been appreciated. Approximately 28 per cent of all people are 10 per cent or more overweight; between the ages of 40 and 60, approximately 60 per cent of all women and 35 per cent of all men are overweight (Ryngerson and Gastineau⁽¹⁰⁾). This makes obesity the most frequently encountered of all physical abnormalities.

The handicaps imposed by obesity are too well known to require elaboration. It is perhaps worth while to point out, however, that by the correction of obesity, the physician may ameliorate considerably the effects of many diseases for which otherwise he has little really effective treatment. The overall medical importance of obesity is best appreciated from the statistical data presented by Newburgh⁽¹¹⁾ (1942), which indicate that for the age group 45-50, the death rate increases roughly 1 per cent for each pound of excess weight.

The Physiology of Obesity

The nature of adipose tissue

Under normal nutritional conditions, fat constitutes from 10 to 15 per cent of body weight. Every cell in the body contains some fat as an integral part of its structure, and this structural fat varies little with nutritional state. Certain tissues, however, have the capacity for storing large amounts of fat in relatively inert form. These are the adipose tissues, and a knowledge of the factors which regulate the deposition and mobilization of fat in these tissues is fundamental to an understanding of the nature of obesity.

Virchow taught, many years ago, that adipose tissue is simply ordinary connective tissue, and that fat may be stored wherever connective tissue occurs. More recently this concept has been challenged (Wells⁽¹²⁾) with the suggestion that adipose tissue is a separate organ, a part of the reticulo-endothelial system which is derived, via the lipoblast, from primitive mesenchyme and not from pre-existing fibroblasts.

It has been demonstrated (Wertheimer and Shapiro⁽¹³⁾) that much of the food fat, after absorption from the intestine, is deposited directly in adipose tissue, and that penetration of fat into the adipose cells is an active process, depending on cellular metabolism and inhibited by cyanide and fluoride. Furthermore, the deposition of fat in adipose tissue is not regulated by the blood fat level, since the latter is elevated during the mobilization of fat in starvation.

The conversion of carbohydrate to fat occurs in adipose tissue as well as in liver, and involves the intermediary formation of glycogen in the fat cells (Wertheimer and Shapiro). This conversion occurs even though liver glycogen stores are not loaded, and requires the action of insulin.

Numerous workers have demonstrated the innervation of adipose tissue by sympathetic nerve fibers (see Wertheimer and Shapiro⁽¹³⁾ for references); and Hausberger (quoted by Wertheimer and Shapiro) found that denervated adipose tissue accumulated fat more rapidly than did normal adipose tissue, apparently indicating a tonic inhibitory effect of the nervous system on fat deposition. It is interesting to speculate on the bearing of these experiments on the mechanism of the obesity resulting from hypothalamic lesions.

As might be expected, the endocrine system has also been implicated in the control of fat deposition and mobilization. Reiss⁽¹⁴⁾ has reported the mobilization of stored fat by the pituitary lactogenic hormone in the rat, and preliminary clinical trials on obese patients have been encouraging. Adrenalectomy has long been known to inhibit the deposition of fat in both liver and fat depots, but Ingle⁽¹⁵⁾ claims that any influence of the adrenal gland on fat metabolism is indirect, involving alteration in the conversion to fat of glucose derived by gluconeogenesis from protein.

It has long been debated whether or not the excess adipose tissue in the obese is metabolically inert. This question is of more than academic interest, since it vitally influences our calculation of the true basal metabolic rate in obese persons. Strang and Evans⁽¹⁶⁾, and Short and Johnson⁽¹⁷⁾ believe that the excess adipose tissue is metabolically inert and that basal metabolic rate values calculated on the basis of actual body weight are therefore too low in obese subjects, giving rise to a false impression of hypome-

tabolism. Talbot and others⁽¹⁸⁾, and Mirski⁽¹⁹⁾, on the other hand, believe that adipose tissue is an active organ with a specific carbohydrate metabolism, a concept supported by the isotope studies of Schoenheimer⁽²⁰⁾.

Basal metabolism in obesity

Since the level of the basal metabolic rate in obese persons has an important bearing on current concepts both of the etiology and of the treatment of obesity, it is a topic which warrants careful consideration. Two interrelated questions must be answered: (1) How valid is the expression of the metabolic rate in terms of an empirically calculated body surface area? (2) Does the surface area law apply without modification to obese persons? It must be confessed that too often these questions have been answered more by faith than by logic. The concept that basal metabolism is proportional to body surface area has been developed by a process of reasoning involving the following steps:

1. Both metabolic rates per unit weight and body surface area per unit weight diminish with increasing body size.

2. Heat loss from an object is proportional to its surface area.

3. If a constant body temperature is to be maintained, heat production must balance heat loss and hence also be proportional to surface area.

This line of reasoning has led to the assumption that body surface area actually determines heat production, a proposition which is difficult for me to accept. Why, for example, should the heat produced by a liver cell in its daily activity be greater in a lean person with high relative surface area than in an obese person with low relative surface area? As a matter of fact, basal metabolic rate in animals of varying sizes is more nearly proportional to the three-fourths power of the body weight than to the two-thirds power of the body weight to which surface area is proportional (Kleiber⁽²¹⁾). In this connection, the recent experiments of von Bertalanffy and Pirozynski⁽²²⁾ are of interest. These workers reported that the Q_{O_2} values of the major organs and tissues of albino rats ranging in weight from 9 Gm. (newborn) to 392 Gm. (adult) did not diminish in accordance with the surface area law nor with the weight three-fourth factor recommended by Kleiber. They suggest that decreasing metabolism with in-

creasing body weight is due to factors involving the organism as a whole, not to decreasing metabolism of each cell.

The second question posed is no less difficult to answer. When measured in the conventional manner, the basal metabolism of obese persons is usually within normal limits. If, however, the excess adipose tissue has a metabolic rate significantly lower than that of the other body tissues, as seems likely, the "metabolically active mass" of the obese person must actually have a supernormal metabolic rate. The possible dangers of the use of thyroid for weight reduction in such a situation are obvious.

Actually, the true metabolic rate in obese persons has not been satisfactorily determined. The validity of the clinical basal metabolic rate measurement is open to question, and protein-bound iodine determinations have given equivocal results (Williams⁽²³⁾). This problem is currently being investigated in the writer's laboratory.

Regulation of body weight

It is a matter of common observation that most adults tend to maintain a reasonably constant body weight year after year despite daily variations in caloric expenditure. Temporary fluctuations in body weight incident to enforced inactivity or to inanition are usually self-limited and quickly reversed when the abnormal stimulus is removed. This implies the existence of a homeostatic regulation of body weight comparable to that which maintains the constancy of the blood sugar, body temperature, and other features of the internal environment. Obesity may be considered to be the result of a perversion of this homeostatic mechanism, just as are the hyperglycemia of diabetes mellitus and the hyperpyrexia of infectious diseases. It is self-evident that until the mechanism which normally maintains a constant body weight is better understood, all attempts to explain the basic causes of obesity will be largely empirical, and the treatment equally so.

Most of the physiologic studies on hunger and appetite have been concerned with the nature of the stimulus which leads the organism to seek food. It is no doubt true that the oral gratification of neurotic needs by the act of eating is responsible for many cases of obesity. However, a matter of equal importance, which has been largely neglected, is the factor which determines satiety.

In this connection, the experiments of Strang and his associates⁽²⁴⁾ are outstanding. They demonstrated that there was no difference in the specific dynamic action of a standard test meal in normal, obese, and thin subjects. However, the time course of the increased heat load was quite different, being delayed in the obese subjects. Measurements of skin temperature revealed a significant fact: normal weight subjects showed a greater and more prompt elevation of skin temperature during and after a meal than did obese subjects. Persons of normal weight were unable to continue eating with a rise in skin temperature of 0.9 C. in 22 minutes. The smaller rise in skin temperature of the obese prevented the attainment of the level at which the normal people could eat no more. This phenomenon might well be related to the slower rate of change of heat production of the obese in response to ingested food, and may account for the consumption of food by the obese in excess of the actual physiologic requirements. Experiments of this type indicate that real differences may exist in the mechanism which determines satiety in normal and obese persons and help to explain the frequent failure of permanent weight reduction by dietary restriction alone.

Daily variations in weight are much greater in obese than in normal persons, due largely to greater variations in the water content of the body. The body heat regulating mechanism is disturbed under the conditions imposed by obesity; with changes in environmental temperature and humidity, larger volumes of water exchange take place. Furthermore, fat deposits have a variable capacity for water storage, said by Lauter⁽²⁵⁾ (1926) to range from 7 to 70 per cent. This variable capacity of fat tissue for storage of water is of importance in relation to the observed weight changes in obese subjects undergoing weight reduction.

A final point of physiologic interest is the self-limited nature of the weight gain in obesity. It was thought at one time that even a very small daily excess of food would lead to unlimited weight gain, and the maintenance of a constant body weight was attributed to an appetite-controlling mechanism of incredible accuracy. The fact that increase in body weight results, *pari passu*, in an increase in caloric requirement was overlooked. Gastineau and Rynearson⁽²⁶⁾ have calculated that an increase in body

weight from 150 to 200 pounds increases the caloric requirement for moderate activity from 2415 to 2760. This means that a 150 pound man eating a 2760 calorie diet would stop gaining weight when he achieved a weight of 200 pounds. Conversely, on a daily caloric intake of 2415 calories, our 200 pound man would lose weight until a new balance was reached at a weight of 150 pounds. This simple caloric book-keeping is the basis of weight reduction by caloric restriction, and it is invariably successful when it is used correctly.

Theories of the Etiology of Obesity

It was popular practice at one time to classify obesity as either exogenous or endogenous. Exogenous obesity was considered to result from consumption of food in excess of requirements and consequently to be corrected by simple dietary restriction. Endogenous obesity, on the other hand, was a somewhat mysterious condition whose victim was doomed by hereditary, constitutional, or endocrine abnormalities to a lifelong state of obesity even though caloric intake was not excessive. In spite of the overwhelming evidence that all obesity is exogenous, in the sense that it is due to an excess of caloric intake over caloric requirement, a casual perusal of current medical journals indicates that the concept of endogenous obesity still has many supporters. Following the classification proposed by Rynearson and Gastineau⁽¹⁰⁾, most of the "endogenous" causes of obesity may be grouped under one of three headings: (1) endocrine factors, (2) genetic factors, and (3) disorders in the use of energy.

Endocrine factors

In the early years of this century, Fröhlich described a syndrome of obesity and genital dystrophy which he attributed to hypopituitarism. Even though later work demonstrated that the hypothalamus, not the pituitary, is the site of the abnormality in Fröhlich's syndrome, the concept of "pituitary obesity" has died slowly. Cushing's syndrome is the one variety of obesity which is associated with pituitary disorder, and even in this instance adrenal cortical hormones probably mediate the metabolic changes responsible for the characteristic distribution of adipose tissue.

It is commonly but erroneously believed that myxedema and hypothyroidism without

myxedema are usually associated with obesity (Bonime⁽²⁷⁾, and Goldzieher⁽²⁸⁾). However, well controlled animal experiments (MaKay and Sherrill⁽²⁹⁾) and statistical studies on patients (Plummer⁽³⁰⁾; Seward⁽³¹⁾) have shown that hypothyroidism does not tend to cause obesity. Apparently the appetite is diminished in proportion to the decreased level of caloric expenditure.

Proponents of the endocrine theory of obesity invariably refer to the "characteristic obesity of Cushing's disease." There seems to be little doubt that in this condition the adrenal cortical hormones have modified the normal distribution of fat, though the obesity may be more apparent than real, owing to weakened abdominal muscles and shortening of the trunk and neck by osteoporosis and flattening of the vertebral bodies (Albright⁽³²⁾). The total amount of adipose tissue is not invariably increased in Cushing's disease (Ingle⁽¹⁵⁾) and patients with Cushing's disease lose weight on a reduction diet just as do other patients (Freyberg and Newburgh⁽³³⁾).

It is almost universally believed that hypogonadism is associated with obesity—in fact, a thin eunuch would be regarded with distinct suspicion! However, despite the almost invariable obesity which follows gonadectomy in animals, there is no proof that hypogonadism in the human is associated with increased incidence of obesity (Greene⁽³⁴⁾; Silver and Bauer⁽³⁵⁾). It has been pointed out that the onset of obesity often coincides with periods of gonadal change, such as puberty, pregnancy and the menopause, and this has been taken as evidence for an endocrine basis of the obesity. However, the shifts in hormone levels are not even in the same direction in these diverse situations, and the psychic conflicts so common at these times are a more likely cause of overeating.

Genetic factors

The Laurence-Moon-Biedl syndrome, consisting of mental deficiency, retinitis pigmentosa, hypogenitalism, obesity, and polydactyly, appears to be inherited as a recessive character. It seems likely (Warkany⁽³⁶⁾) that this syndrome is the rare, chance combination of relatively frequent heredofamilial anomalies. There is no proof that the obesity results from any factor other than a large appetite and decreased activity.

The Morgani - Stewart - Morel syndrome

(hyperostosis frontalis interna) includes internal hyperostosis of the frontal bone, headache, and frequently obesity, sexual disturbances, hypertension, and psychoneurotic tendencies. The obesity again seems to be the result of derangement of the appetite-regulating mechanism.

Obesity which occurs frequently in certain families but without other congenital abnormalities is often regarded as truly familial in nature. Bauer⁽³⁷⁾, in particular, has championed the idea of an inherited, abnormal avidity of the adipose tissue for fat ("lipophilia") which, by depriving other parts of the body of nourishment, increases hunger and hence the intake of food. According to this view, the increased appetite is the result, not the cause of obesity. There is no experimental evidence to support this concept, and much to oppose it.

Among the poorly understood conditions associated with obesity, one may mention progressive lipodystrophy and adiposis dolorosa (Dercum's disease). In both conditions, dietary restriction results in loss of fat from the regions of obesity.

Disorders in the use of energy

A common complaint on the part of obese people is that they remain fat in spite of very modest caloric intakes. However, in every case in which the caloric value of their diets has been checked it has been found to be high, and weight loss has proceeded according to calculation under controlled dietary restriction (see Newburgh^(11,38) for references).

Among the specific energy abnormalities which have been claimed to cause obesity, together with discrediting references, are the following: excessive gastrointestinal absorption (Wilder⁽³⁹⁾), increased efficiency in doing work (Newburgh⁽³⁸⁾), and reduced specific dynamic action of foods (Strang, McClugage, and Evans⁽⁴⁰⁾).

In summary, there seems to be very little evidence to support any of the numerous endogenous factors which have been suggested as causes of obesity. It would appear that in every case obesity is actually exogenous in origin—that is, the result of excessive intake of food. This simplifies, but by no means solves, the total problem of obesity by focussing attention on the cause and correction of the increased food intake.

Emotional Aspects of Obesity

(Valuable source material on this topic may be found in Richardson⁽⁴¹⁾ and Hamburger⁽⁴²⁾). It is common knowledge that when a person is upset or under some emotional tension there is often a reflection in his appetite, which may be either increased or decreased. "In morbid emotional states, particularly the depressions, eating disturbances are usually cardinal symptoms. Often the neurotically depressed person will overeat and gain weight, whereas the psychotically depressed person often refuses food. Thus in sickness and in health there is an intimate interrelationship of appetite and the person's emotional state."⁽⁴²⁾ Despite these leads, the emotional basis of obesity has only recently begun to receive serious attention. The failure of many obese patients to persist in weight-reduction programs as well as the realization by the patients themselves that they overeat when emotionally aroused have been largely instrumental in bringing about this reorientation of thinking on the part of physicians. For example, Freed⁽⁴³⁾ asked 500 obese patients, "When you are nervous or worried do you eat more or less?" Only 35 of the 500 patients reported no increase in food intake under conditions of anxiety or of boredom.

This reaction in obese persons does not appear to differ qualitatively from that of normal people, but quantitatively their appetite response to an emotional stimulus is greater than that of the healthy person.

Overeating as a response to nonspecific emotional tensions

Hamburger found that 12 of his series of 18 patients whose obesity was on an emotional basis were aware of marked changes in appetite accompanying transient, nonspecific emotional upsets. Two of these ate less and the other 10 ate more. It is of interest in connection with the routine questionnaire method that some patients reveal a relation between appetite and emotional tension only after many hours of psychotherapeutic reviewing.

Overeating as a substitute gratification in intolerable life situations

Seven of Hamburger's patients gave a history of reacting to intolerable or frustrating life situations with chronic overeating. These patients apparently gained some

sort of substitute emotional gratification and relief of tension by overeating.

Overeating as a symptom of an underlying emotional illness, especially depression and hysteria

Eight of Hamburger's patients developed hyperphagia as only one of many symptoms of an underlying emotional illness. Of the entire series of 18 patients, 12 exhibited depressive features in their histories, and 3 had made suicidal attempts. Others became depressed as they lost weight under treatment; this has been noted by other workers, and has no doubt been responsible for the frequent abandonment of attempts at weight reduction. Six of Hamburger's patients, all hysterical women, overate in response to sexual conflicts, either real or imagined. For various reasons these women failed to mature emotionally, and were incapable of enjoying an adult sexual life. The psychoanalytic explanation would be that since these women could not accept genital gratification, they substituted the oral gratification of eating. To them eating had an unconscious sexual significance. The fact that overeating leads to obesity, which diminishes the chances of heterosexual contact and responsibilities, is probably also a factor of some importance in these immature women.

The foregoing section is not intended to be a complete analysis of the emotional basis of obesity, which is beyond the scope of this paper. It is presented rather as an illustration of the complex psychologic factors underlying obesity in one thoroughly studied series of patients. It is not possible to say what proportion of cases of obesity has basically a psychologic etiology, but it must be very large. Failure to consider this factor has frequently been responsible for disappointing results in weight-reduction programs.

General Principles in the Treatment of Obesity

The treatment of obesity is very simple in theory, but it may be extremely difficult in practice. If it be granted that all obesity is caused by a caloric intake which exceeds caloric requirement—that is, by overeating—it follows that the logical treatment is caloric restriction. Newburgh (*loc. cit.*) has demonstrated conclusively that obese patients always lose weight on a restricted diet, if allowance is made for the water

retention which often occurs during the early weeks of treatment. An excellent discussion of the dietary management of obesity is found in Rynearson and Gastineau's monograph⁽¹⁰⁾.

Psychotherapy

It should be clear from the discussion of the etiology of obesity, that dietary restriction will often be doomed to failure unless the basic factor responsible for overeating is corrected. Superficial psychotherapy in the form of encouragement and reassurance may be all that is needed. Some patients will adhere to their diet only if the possible dangers of obesity are clearly stressed. Where overeating serves a deep seated neurotic need, more extensive investigation and psychotherapy are necessary. Moreover, obese neurotic patients often become depressed during dietary restriction, especially if an attempt is made to reduce the weight too rapidly. These patients require expert guidance; dietary restriction without psychotherapeutic reassurance is almost never successful.

Drugs

Two types of drugs have been used as adjuncts to dietary restriction in the treatment of obesity. These are the anorexigenic drugs, typified by amphetamine, and the metabolism-stimulating drugs, typified by thyroid extract.

Amphetamine alone may bring about weight loss as a result of depression of the appetite and a voluntary reduction in food intake. Harris and Ivy (quoted by Rynearson and Gastineau⁽¹⁰⁾) demonstrated in animal experiments that the anorexia induced by amphetamine is of central origin and independent of any effect on gastric motility or secretion. The pressor and stimulant side-effects of amphetamine led to a condemnation of its use as an adjunct to weight reduction by the A.M.A. Council on Pharmacy and Chemistry; more recently the Council has withdrawn its objection, provided the drug is used under careful medical supervision. It is generally accepted that amphetamine should not be used as a substitute for, but rather as an adjunct to planned dietary restriction. It is particularly useful when the weight loss begins to decelerate after some weeks of dietary restriction (Douglas⁽⁴⁴⁾).

There is considerable difference of opinion

concerning the advisability of using thyroid in the treatment of obesity. It has already been pointed out that hypothyroidism is rarely associated with obesity and that most obese persons may actually be hyperthyroid if calculations are based on true "metabolic weight." Small doses of thyroid are probably inactivated in euthyroid subjects (Winkler and others⁽⁴⁵⁾, 1943), large doses are effective only by causing hyperthyroidism (Means⁽⁴⁶⁾, 1935), and its associated dangers, especially damage to the heart, must be borne in mind. The majority opinion today favors the use of thyroid extract only when definite clinical signs of hypothyroidism are present.

Diuretics

Newburgh (*loc. cit.*) has emphasized that reduction of adipose tissue by dietary restriction may induce water retention which often obscures the expected weight loss. There is usually a spontaneous diuresis during the early weeks of treatment, so that diuretics are seldom needed. Perner⁽⁴⁷⁾, however, believes that most patients require diuretics for optimum results. If diuretics are to be used, it is suggested that the less harmful ones, such as ammonium chloride and urea, be employed. The restriction of salt in the diet serves the same general purpose, but the restriction of water serves no useful purpose. Similarly, loss of weight in heat cabinets resembles merely loss of water as sweat, and the deficit is soon made good.

Exercise and massage

These are popular but ineffective methods of weight reduction. A rather tremendous amount of exercise is required for weight reduction, and this is often dangerous to the already overtaxed heart of the obese person.

Massage is even less effective (Kalb⁽⁴⁸⁾, 1944; Short and Currence⁽⁴⁹⁾, 1939) in mobilizing either generalized or localized deposits of fat.

Summary and Conclusions

1. Obesity is the most common physical defect found in the general population.

2. Correction of obesity significantly increases longevity and decreases morbidity and mortality in a wide variety of disease states.

3. Adipose tissue is a specialized tissue with its own metabolism, not merely connective tissue which passively stores fat.

4. The basic factor in all types of obesity is excessive food intake.

5. Endocrine, genetic, and metabolic abnormalities account for a small proportion of cases of obesity.

6. In most cases of obesity, increased food intake is the result of psychosomatic needs.

7. The basic principle in the correction of obesity is dietary restriction. Psychotherapy of some type is usually necessary for successful dietary management, and drugs may at times be useful adjuncts.

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THE PLACE OF CYSTINURIA IN HUMAN DISEASE

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CHAPEL HILL

Cystinuria, or the urinary excretion of abnormal quantities of cystine, has been regarded for many years as an "inborn error of metabolism," rare and comparatively harmless. In common with other amino acids, cystine is excreted in normal urines to the extent of 1 to 10 mg. per day. In the cystinuric this output may reach 1 or even 2 Gm. per day. Even in cases of severe cystinuria the condition is not highly objectionable, and a cystinuric subject may live a normal life except for the complications arising from the liability, often realized, of continued calculus formation in the urinary tract. This

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liability is due to the fact that cystine is one of the very few amino acids whose solubility is extremely slight when in the free state. Its minimum solubility occurs at about pH 4.0, and it is only slightly more soluble at the normal urinary pH of 6.0. In more alkaline urines (pH 7.0 to 7.5), its solubility is much increased, owing to formation of the soluble salt, a circumstance of which clinical advantage can be taken. The constant and lifelong liability to the cystinuric is therefore that of calculus formation in kidney or urinary bladder. This fact, together with the ease with which cystine stones are often confused with those of other composition, creates a situation justifying far more clinical attention than has usually been accorded it.

Although cystinurics are rare, they are not as rare as has been claimed. The best available data⁽¹⁾ indicate that its incidence is from one in 500 to one in 1000 persons. While many of these patients excrete the cystine harmlessly in solution because of colloidal materials in the urine which prevent crystallization, many also deposit "gravel" or calculi; and the possibility of the latter is a lifelong threat. From the standpoint of the cystinuric patient, and to distinguish him from other calculus-formers, an accurate diagnosis is essential.

Although one of the first amino acids to be described in the literature, cystine was not recognized as a normal constituent of proteins for nearly a century later. For its early discovery we may thank the nameless cystinuric subject whose calculus was sent to Dr. W. H. Wollaston. Dr. Wollaston published, in 1810, a brief account of the properties and composition of this substance, which he named "cystic oxide," a name subsequently shortened to cystine. In 1899, Morner, the Swedish investigator, reported the presence of a form of cystine in proteins, and after about 30 years more it was generally agreed that the two forms, that in calculi and that in proteins, are identical.

Up to about 1921 cystine was regarded as the only sulfur-containing constituent of proteins, and all sulfur present in the latter was credited as representing cystine. At this time, however, J. H. Mueller reported the presence in a number of proteins of methionine. Previously, cystine was classed as one of the amino acids essential to growth. Further investigation, once the presence of

methionine was established, showed the latter to be a dietary essential with cystine occupying the place of a partial substitute. The role of methionine in metabolism has loomed greater with continued investigation. It is not only the chief source of the biologically essential methyl group, but its sulfur is convertible by the animal into cystine. It seems to be the case that the animal can convert methionine into cystine, but not the reverse. Nevertheless, cystine, while not a dietary essential, plays an important part in metabolism, and is present in nearly all body proteins, particularly the keratins.

Under normal conditions, the final metabolic oxidation product of these amino acids is sulfuric acid. Since the normal pH of urine does not permit the excretion of the unneutralized acid, it is actually present as a mixture of soluble sulfates, chiefly sodium sulfate. A small proportion of urinary sulfate is diverted into the form of sulfate esters as a result of a detoxication process. This fraction is commonly known as the "ethereal sulfate." A similar small amount of the urinary sulfur is excreted in a variety of unoxidized forms, among which are the minute amounts of cystine found, as stated above, in all normal urines. Under normal dietary conditions, about 1 Gm. of total sulfur is excreted per 24 hours. An average normal percentage partition of this sulfur is as follows:

Inorganic sulfate . . .	90 per cent
Ethereal sulfate . . .	5 per cent
Unoxidized sulfur . . .	5 per cent

In the cystinuric subject, the excretion of excessive amounts of cystine, being a defect in sulfur oxidation, greatly changes these figures. The excreted cystine, representing unoxidized sulfur, falls into that category at the expense of the inorganic sulfate. As a result, urine from a typical cystinuric would show a percentage partition somewhat as follows:

Inorganic sulfate . . .	40 per cent
Ethereal sulfate . . .	5 per cent
Unoxidized sulfur . . .	55 per cent

The severity of the cystinuria, however, considerably influences these figures.

From the chemical point of view, the problem of biologic oxidation of the sulfur of both cystine and methionine is most fascinating. No other chemical element metabolized by the animal body undergoes such a wide change of valence in its oxidation, a

change virtually from its lowest to its highest valence, minus 2 to plus 6. In view of this fact we might well expect to find more individuals in the world showing defective oxidation of sulfur, and therefore excreting abnormal amounts of cystine. It is a curious fact, one for which we have yet no good explanation, that cystine administered by mouth to a cystinuric subject is oxidized in the normal manner to inorganic sulfate. The cystine excreted by the cystinuric would seem to be of endogenous origin. Methionine, when fed by mouth to the cystinuric, has been reported by some investigators to produce increased excretion of cystine⁽²⁾ while others⁽³⁾ have failed to observe this increase. In one case, reported by the author⁽⁴⁾, a subject who at a pre-adolescent age (13 years) showed no increased cystine excretion on methionine administration did, three years later, show a moderate increase in cystine output under these conditions. This same subject, however, showed a greater increase in cystine output as a result of diuresis after quadrupling his water intake.

The effect of the level of protein intake on cystine excretion has also received considerable attention. It is generally agreed that a high protein intake produces increased cystine excretion. By some investigators this is ascribed to the methionine content of the protein^(2a), whereas others have reported comparable increases resulting from administration of even some of the amino acids (glycine, alanine, and so forth) containing no sulfur^(3b). It is obvious that the exact mechanism of this abnormality is still obscure.

The most obvious clinical manifestation of cystinuria is the formation of calculi in the kidney or urinary bladder. These have been known to reach considerable size. Tennant⁽⁷⁾ reported the removal from a patient of several cystine stones, the largest of which, from the cortex of the right kidney, weighed 50 Gm. Other cystine calculi of similar size have been reported. As far as present records show, no calculus deposited by a cystinuric has any other composition than that of practically pure cystine. An alkaline ash diet, producing a urine of pH 7 or above, can materially aid in dissolving small cystine calculi or "gravel," whereas precisely the opposite treatment (an acid ash diet) is indicated for the most common of all forms of calculi: tricalcium phosphate.

The importance to the cystinuric patient of a correct diagnosis of his situation is

obvious when it is realized that an acid ash diet, involving a high level of protein ingestion, not only increases the cystine output by reason of the larger amounts of protein metabolized, but also renders the cystine less soluble by reason of the lowered pH of the urine. It should again be emphasized that many cystinurics do not deposit even small calculi; but for any such subject such stone formation is a lifelong liability. There are no known cases in which the condition has been cured: Once a cystinuric always a cystinuric. Perhaps no one fact about this condition is so well established as its lifelong permanence.

Cystinuria is hereditary in nature. Although complete data in this regard are none too abundant, several family trees of cystinuric families have been reported. One of these is quoted by Lewis⁽¹⁾. I have reported others⁽⁴⁾. In the last study, Dr. Brooks and I had the opportunity to study four generations of a cystinuric family. Of the 25 members examined, 7 were cystinurics. We appear to be dealing with a recessive characteristic.

One further observation of a somewhat qualitative nature might be mentioned. In the writer's experience cystinurics are, in general, persons of somewhat less than average stature. This has been the case with all subjects personally observed, and was particularly marked in the siblings of the third generation in the family cited above^(6b). While not to be described as dwarfs in any sense of the word, the cystinurics have always been of somewhat slight build.

The therapeutic measures to be recommended in dealing with this condition may be described as follows: A prerequisite in instituting treatment is correct diagnosis. In my opinion, any case of real or suspected calculus formation should be tested. The test may be applied to any calculus or to the subject's urine. The latter will always show an abnormal content of cystine if the subject is a true cystinuric, independent of any evidence of calculus formation. The speed and simplicity of the nitroprusside test for cystinuric urines, as described by Brand, Harris, and Biloon⁽⁷⁾ makes possible very prompt testing of either calculus or urine samples. Positive results on a urine sample call for further confirmation, but negative results can be regarded as unequivocal.

The nitroprusside test may be made as follows: To about 5 ml. of urine in a test

tube add an equal volume of a 5 per cent sodium of cyanide solution. Allow to stand about five minutes at a room temperature, then add 3 or 4 drops of a freshly prepared 5 per cent solution of sodium nitroprusside. A brilliant purple color is produced in the presence of cystine. Compare with a known normal urine.

If a patient with a correctly diagnosed case of cystinuria is depositing small calculi or "gravel," a beneficial effect may be obtained by employing those factors which make for a more alkaline urine, since at a pH of 7.0 or 7.5 the formation of the soluble sodium salt is markedly increased. Such factors are (1) a low protein intake, (2) the inclusion of a preponderance of "alkaline ash" dietary constituents (vegetables and most fruits), and (3) the administration of such alkalies as sodium bicarbonate or sodium citrate. The low protein intake, as explained above, serves the dual purpose of reducing the cystine output as well as of providing a more alkaline urine. If deposits of cystine are already present in the urinary tract, the sudden production of more alkaline urine will cause an increased excretion of the dissolved amino acid owing to the increased solubility. This finding has sometimes been ascribed erroneously to an increased cystine production on the part of the organism, whereas it is simply a temporary flushing-out process.

The process of alkalization of the urine is obviously favorable to the dissolving of certain other calculi, notably those composed of uric acid. On the other hand it is definitely contraindicated in oxalate calculi, and in the most common case of all—calcium phosphate. The application of alkali therapy in the latter two conditions would obviously be favorable to the further building up of calcium oxalate and calcium phosphate calculi.

Although cystinuria is regarded as a rarity, the importance to the cystinuric patient of a correct diagnosis is paramount.

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THE RELATION OF SOME RECENT BIOCHEMICAL INVESTIGATIONS TO DISEASES OF INTERMEDIARY METABOLISM

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CHAPEL HILL

During the past several decades there has been established a considerable body of information which, though it may change considerably in detail, presents a pattern whereby the major foodstuffs and metabolites may be traced through the principal pathways of intermediary metabolism. Admittedly, the pattern, which is presented in its most general outline in figure 1, is still incomplete. There are steps in which the facts are scanty and the evidence contradictory. In some instances reactions first have been observed in microorganisms, and later found to occur as essential processes in animal metabolism. Nevertheless, in its broad aspect, the pattern is generally accepted as representing the pathway for the intermediary metabolism of carbohydrate, fat, and protein in the human organism.

It is not the purpose of this paper to review the complex field of intermediary metabolism or, for that matter, even a narrow segment of this complex structure. Rather, it is hoped to show by a few examples how recent laboratory investigative work has revealed certain information concerning fundamental metabolic patterns in the animal organism, and how through such an increase in our knowledge it is possible to obtain a clearer insight into the underlying biochemical fault of metabolic disease. In some instances the information presented here has been amply substantiated, in other instances confirmation is necessary, and in

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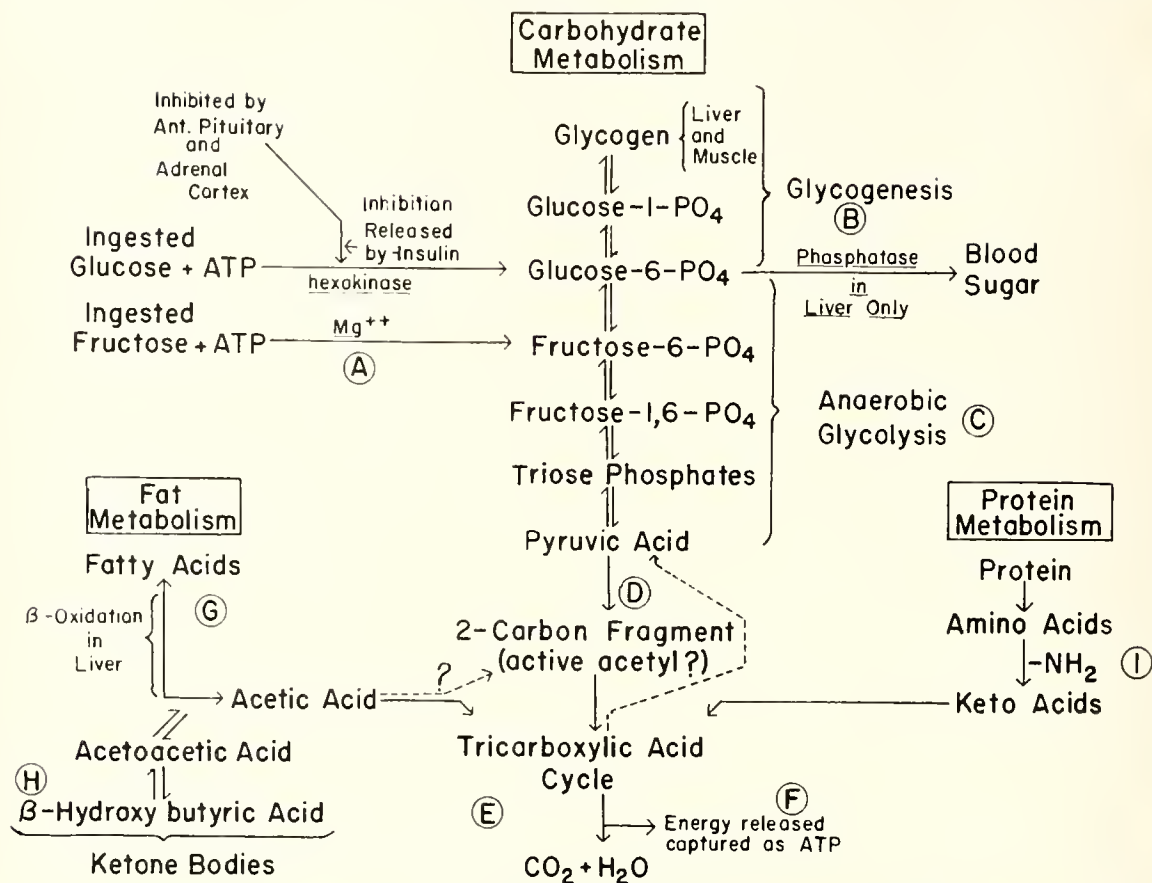


Fig. 1. Schematic representation of the metabolic pathways for carbohydrate, fat, and protein.

at least one instance the hypothesis advanced is admittedly speculative.

The "Metabolic Pool"

Since 1946 great strides in our knowledge of the processes of intermediary metabolism have been made possible by the use of isotopes or tracers, and the application of tagged molecules to established classical methods of experimentation. Such studies have revealed that previously accepted concepts of the independence of the various foodstuffs or major metabolites and a sharp separation of exogenous and endogenous metabolism are no longer possible. Instead, the metabolites arising from ingested carbohydrate, fat, and protein coverage in common 2-carbon fragments (D in figure), for which the exact mechanisms of formation and structure are still uncertain and controversial. However, through such a scheme as that shown in the figure, ingested carbohydrate, fat, and protein, initially vastly different in chemical

constitution and properties, are converted by enzymatic action into a limited number of small molecules, indistinguishable in regard to their point of origin and parent compound, which then constitute a common "metabolic pool" in equilibrium with the tissues of the organism⁽¹⁾. Through such a common "metabolic pool" it is possible for the animal organism to convert rapidly, by a reversal of the enzymatic reactions concerned, one foodstuff to another as needed for tissue repair or some other vital function.

The concept of a "metabolic pool," as described by Bloch⁽²⁾, may not correspond to any physical reality in the sense that there exists in the body at a given moment a large reservoir of metabolites in which molecules derived from dietary and various tissue constituents are distributed in random fashion and therefore are indistinguishable. It merely means that carbohydrate, fat, and protein are interconvertible in the sense that they give rise to breakdown products which lose

the identity of origin and can be utilized interchangeably for the resynthesis of any one of the three major tissue constituents.

The liberation of energy by oxidation

It appears likely at the present time that within each metabolizing cell there is a common oxidative pathway (E in figure), the so-called tricarboxylic acid cycle or Krebs citric acid cycle⁽³⁾, through which the 2-carbon fragments can be swept and oxidized to carbon dioxide and water with the release of energy. By such a mechanism it is possible to visualize how the energy of the sun, utilized by the plant in the synthesis of the foodstuff molecule, is gradually released during the degradation or oxidation of the same molecule in the animal organism and used as energy for muscle contraction and motion, as electrical energy for the transmission of nerve impulses, as chemical energy for the synthesis of tissues and other vital chemical compounds essential to the body economy, or dissipated as heat. Through such a scheme the animal body, by the investment of a relatively small amount of energy for the formation of hexose phosphate from ingested carbohydrate (A in figure), realizes a dividend in a greater return of energy through the complete oxidation of the sugar molecule. This dividend in energy in turn enables the cell and the organism to continue the life processes.

The enzymes and co-enzymes

Oxidation is the chief means for the liberation of energy in the animal organism. However, the physiologic limits imposed on the sensitive and labile tissues are such that the explosive direct union of oxygen with the food metabolite is not physiologically possible or compatible with life. Such an explosive release of energy is also obviously wasteful. Therefore, in the course of the metabolic breakdown of glucose, or for that matter any of the foodstuffs, enzymes play vital roles, not only in catalyzing each individual step, but in assisting in the mild, gradual oxidation of the glucose molecule by hydrogen transfer, or more properly by electron transfer, until hydrogen can be directly united with oxygen to form water.

In this latter role, co-enzymes are essential. Co-enzymes are organic molecules associated with a specific enzyme protein. Dissociation of the co-enzyme, or prosthetic

group, from the protein portion renders the enzyme inactive. Some of these co-enzyme molecules contain vitamins of the B group. Nicotinamide, for example, is a component of the di- and triphosphopyridine nucleotides, which function as co-enzymes and assist in the oxidation of hexose phosphates during anaerobic glycolysis (C in figure). Riboflavin and thiamine function in similar capacities, as for example in the oxidative decarboxylation of pyruvic acid to a 2-carbon fragment (D in figure).

These are only a few of the instances in which vitamins function as components of enzyme systems. The point to be made is that a deficiency of one or all of these vitamins, or an inhibition of their function through disease, may seriously interfere with the normal functioning of the metabolic pathways. In thiamine deficiency, for example, pyruvic acid accumulates in the body because of a diminished ability on the part of the organism to supply thiamine pyrophosphate, a requisite part of the enzyme system involved in the decarboxylation of α -ketoacids (as for example, pyruvic acid)⁽⁴⁾. In addition to co-enzymes, traces of certain metals such as magnesium, manganese, calcium, cobalt, iron, and such anions as chloride are frequently necessary to promote enzymatic activity.

Diabetes Mellitus as an Example of Homeostatic Adjustment

From the foregoing it is apparent that the metabolic scheme is itself a sensitive homeostatic mechanism reacting to stress placed on any one member by a suitable adjustment in the remaining members. Many of these adjustments involve enzyme systems. The symptoms associated with increased fat and protein metabolic activity in diabetes mellitus, which is initially a defect in carbohydrate metabolism, is a classic example of this homeostatic adjustment. Here, in part at least, an interference, apparently of endocrinologic origin, with an enzymatic reaction essential to normal carbohydrate metabolism stimulates an increased fat and protein metabolic activity. If, then, one way of defining life is an orderly functioning of enzymes, and if disease manifests itself as a disorder, inhibition, or hyperfunctioning of enzymes⁽⁵⁾, it is obvious that an understanding of the normal processes of intermediary metabolism, and its many enzyme

systems, is not only of theoretic interest, but of immense practical value in understanding a disease and its treatment.

Ingested glucose and other utilizable monosaccharides are not directly oxidized by cells but enter the metabolic stream by first being converted to hexose phosphates (A in figure). In the case of glucose, phosphate is transferred to the sugar from adenosine triphosphate (ATP) or adenosine diphosphate (ADP). The latter substances are then reconstituted through the energy derived from the oxidation of glucose in the glycolytic (C in figure) and tricarboxylic acid cycles (E in figure).

The reaction transferring phosphate to sugar is catalyzed by the enzyme hexokinase. This enzyme was first discovered in yeast by von Euler and Adler⁽⁶⁾, and independently by Lutwak-Mann and Mann⁽⁷⁾. The enzyme was first crystallized by Cori and his associates⁽⁸⁾, and requires magnesium ions for the reaction to proceed. Recently, several laboratories have presented evidence for the existence of separate glucokinases and fructokinases in animal tissues⁽⁹⁾. Inasmuch as this reaction is an obligatory first step and must occur before glucose may be either converted to glycogen in the liver and muscles, or catabolized to yield energy, the reaction is obviously of great significance and of fundamental importance to carbohydrate metabolism.

Etiology of Diabetes

Diabetes mellitus is a disease characterized by hyperglycemia and impaired glucose metabolism. The exact etiology of diabetes in man is still unknown. Although the metabolic defect can usually be corrected by the administration of insulin, the diabetic state may be more complex than just a simple insulin deficiency. The production of experimental diabetes by the destructive effect on the beta-cells of the pancreas by alloxan, a uric acid derivative, has led to the suggestion that in human diabetes an alloxan-like metabolite is formed, possibly in the course of purine metabolism. This and other possible factors contributing to the etiology of diabetes have been recently reviewed by Lazarow⁽¹⁰⁾. Evidence to date would indicate that diabetes develops as a consequence of disturbance in the balance between insulin production on the one hand and factors modifying its utilization on the other.

Until comparatively recently the probable

mechanism by which insulin acts has remained a mystery. The brilliant studies of Cori and Cori, and their associates⁽¹¹⁾ have shown that secretions of the anterior pituitary gland and adrenal cortex together act to inhibit the action of hexokinase in its role of catalyzing the phosphorylation of glucose to glucose-6-phosphate. Insulin, which apparently is without effect upon hexokinase itself, effectively blocks this inhibition. It follows, then, that an insulin deficiency or an excess of anterior pituitary or adrenal cortical hormone might inhibit hexokinase unduly and thus effectively decrease glucose utilization, which would result in hyperglycemia and failure to store glycogen. Conversely, an excess of insulin might be expected to overcome the inhibition of hexokinase, and glucose might be phosphorylated at a normal or faster rate.

On the basis of these findings, it is presumed that the diabetic state may result from either excessive secretions of anterior pituitary and adrenal cortical factors which inhibit the hexokinase reaction, or a deficient secretion of insulin which normally counterbalances the inhibition from the hexokinase reaction. The finding of Vilee and Hastings⁽¹²⁾ that glucose utilization was accompanied by glycogen deposition in all but the adrenalectomized animal, and that insulin increased glycogen formation lends support to the concept, as do the findings of other workers who have demonstrated the antagonistic action of the adrenal and pituitary hormones on the one hand, and insulin on the other.

In addition to the metabolic implications of this work is the fact that this was the first demonstration of hormone action on a biochemical level. Although the work of Cori and his associates on the hexokinase mechanism fits well with many of the facts of clinical diabetes, the hexokinase inhibition and activation may be only a part of the picture. Furthermore, a word of caution concerning its general acceptance is necessary because of some of the contradictory results obtained by Stadie and Haugaard under somewhat similar experimental conditions⁽¹³⁾.

Relationship of Diabetes to Increased Fat Metabolism

According to the figure, the end product of the glycolytic phase of carbohydrate metabolism is pyruvic acid (C in figure), and as a result of the catabolism of fatty acids

acetic acid is formed (G in diagram). It is now rather generally accepted that fatty acids arising from endogenous and exogenous fat are oxidized via a modified B-oxidation pathway as first described by Knoop⁽¹⁴⁾. According to this hypothesis, the terminal 2-carbon atoms of the fatty acid chain are successively removed as acetic acid.

That acetic acid or some other similar 2-carbon fragment or derivative is a product of fatty acid oxidation has been abundantly proved. Bloch and Rittenberg⁽¹⁵⁾ by means of isotopically tagged fatty acids have provided excellent evidence for the formation of acetic acid, or some other 2-carbon fragment with the properties of acetic acid. Whether the 2-carbon fragment that arises from the oxidation of pyruvic acid is identical with the 2-carbon fragment resulting from fatty acid oxidation is as yet uncertain and currently the subject of intense investigation. This subject has recently been reviewed by a number of investigators⁽¹⁶⁾.

Whatever the nature of the 2-carbon fragment, it is certain that acetic acid is rapidly swept into the tricarboxylic acid cycle and oxidized to carbon dioxide and water, and that the rate of this oxidation is markedly influenced by the rate of pyruvate production. In a recent experiment the author and his associates⁽¹⁷⁾ found that when radioactive sodium acetate labeled in the carboxyl carbon is injected intraperitoneally into a normal rat, an amount greater than 90 per cent of the activity originally in the injected acetate was expired in the respiratory carbon dioxide. Approximately 80 per cent of the total activity was expired within the first two hours. Only 1.78 per cent of the activity was found in the fatty acids isolated from the tissues of the animal. The oxidation of acetic acid is normally, therefore, very rapid, and this may in some measure account for the frequent failure of investigators to detect, with ordinary chemical and physical techniques, acetic acid, or some close derivative, in animal tissues. These same investigators⁽¹⁸⁾ have also noted that when non-isotopic pyruvate was administered along with the labeled acetate, the rate of oxidation of acetate was diminished and the incorporation of activity into the tissue fatty acids was enhanced. In the light of the findings just described, it is not surprising that any diminution in the production of pyruvate, as in starvation or diabetes mellitus, elicits a prompt and immediate response by increas-

ing the rate of fatty acid oxidation, possibly for the purpose of remedying the loss of energy-forming reactions resulting from the impairment of carbohydrate metabolism. The probability that this sensitive, trigger-like mechanism is controlled by some as yet unknown endocrine control is recognized.

The Development of Ketosis

For a number of years, because of the observation that ketone bodies accumulate in the starving animal and in the experimental animal rendered diabetic, some doubt has been cast on the B-oxidation theory. Additional support for doubt was obtained through the well known clinical fact that ketosis invariably follows as a consequence of unregulated diabetes. Since under the conditions just indicated acetoacetic acid (a ketone body), and not acetic acid, appears to accumulate, the ketone bodies came to be regarded as primary oxidation products of the fatty acid chain.

Within recent years some revision of this concept has been necessary because work by Barnes and associates in the intact animal⁽¹⁹⁾, and Weinhouse, Medes and Floyd in liver slices⁽²⁰⁾ has shown that ketone acids are formed as the result of condensation of two molecules of acetic acid. Weinhouse and his co-workers incubated liver slices with an 8-carbon fatty acid (octanoic acid) which had been previously labeled with isotopic carbon (C^{13}) in the carboxyl group. The ketone acid which was isolated from the mixture was found to contain the labeled carbon in both the carboxyl or terminal carbon and in the keto or carbonyl carbon. The activity was nearly equally distributed between the two carbon atoms. Acetoacetic acid with such a distribution of isotopic carbon could not have resulted from the splitting of the 8-carbon acid into two 4-carbon compounds. Rather, first there must have been a splitting of acetic acid from the larger fatty acid, followed by a condensation of two acetic acid molecules to form acetoacetic acid. It becomes unnecessary, therefore, to assume that acetoacetic acid lies on the main path of fatty acid oxidation, but rather that it is formed as a result of a side reaction (G and H in figure).

Liver tissue appears to have a limited capacity for oxidizing fatty acids beyond the acetic acid or 2-carbon stage. With a limited ability to oxidize the product, acetone bodies are formed which are dispatched to the extrahepatic tissues for complete oxida-

tion. A small but definite blood concentration of ketone bodies is therefore normal. In the diabetic animal, Chaikoff and Soskin⁽²¹⁾, and also Barnes⁽²²⁾, have found that the tissues oxidize ketone bodies as readily as do those of normal animals. The ketonemia and resulting ketosis of the person with diabetes would not appear, therefore, to be the consequence of an impaired ability to oxidize and remove these bodies. Rather, the accumulation of ketone bodies in the diabetic person appears to be the resultant of a stimulated fat catabolism on the one hand, and on the other on a limit placed on the rate through which acetic acid can be swept into the tricarboxylic acid cycle and burned to carbon dioxide and water. In the former case the stimulation appears to be due to the need to compensate for the loss of energy-providing reactions because of the defect in carbohydrate metabolism. In the latter case the limit need not be an abnormal one, although this possibility is recognized in view of the stimulating effect of pyruvate on acetate oxidation previously described, but rather a physiologic limit to the number of acetic acid molecules, or 2-carbon fragments, that can be taken into the tricarboxylic acid cycle during a given period of time. The net result is an accumulation of acetone bodies (acetoacetic acid and B-hydroxybutyric acid) from the acetate formed. This condition would persist until the initial carbohydrate defect is corrected.

Relationship of Diabetes Mellitus to Hypercholesteremia

It is reasonably well established that ketosis of any appreciable duration resulting from a variety of causes leads to hypercholesteremia. The work of Bloch and Rittenberg⁽²³⁾ using labeled acetate has shown that the carbon atoms of acetic acid contribute to the molecular structure of both cholesterol and fatty acids. Barnes and associates⁽¹⁹⁾, and Weinhouse and co-workers⁽²⁰⁾ have shown that the labeled carbon of acetic acid can be utilized in the synthesis of acetoacetic acid (ketone body), presumably by the condensation of two molecules of acetic acid. It is perfectly feasible, therefore, for the animal organism to use the carbon atoms of acetic acid, arising as the end product of B-oxidation of fatty acids, (1) for the resynthesis of fatty acids, presumably by a reversal of the catabolic pathway (G in the figure); (2) for the production of ketone

bodies, apparently by a side reaction previously described (H in figure); and (3) for the synthesis of cholesterol by mechanisms as yet unknown.

Although the exact nature of the stimulus influencing the direction of synthesis is as yet unknown, a suggestion can be found in the liver tissue slice experiments reported by Bloch⁽²⁴⁾. In these experiments Bloch found that when liver tissue slices were incubated with acetate, labeled in the carboxyl group with radioactive carbon (C^{14}), there was an increased incorporation of radioactive carbon in the fatty acids isolated from the mixture as the concentration of non-isotopic pyruvate added was increased, and a marked lowering of the isotopic concentration in the cholesterol isolated. Apparently, the direction of incorporation of carbon from acetate, whether toward fatty acids or cholesterol, is very sensitive to fluctuations in the concentration of pyruvate. In the presence of increasing concentrations of pyruvate, the emphasis would appear to be in the direction of tissue fatty acid synthesis, while in the presence of decreasing concentrations of pyruvate, there is a shift in emphasis to cholesterol synthesis.

On the basis of these experiments, it would appear reasonable to postulate that in conditions where very large quantities of fatty acids are being catabolized, as in diabetes, and where there is presumably a diminished production of pyruvic acid because of the impaired carbohydrate metabolism, greater quantities of acetic acid than normally occur would accumulate. Since it would appear that there are limitations to the rate at which acetic acid can be incorporated into and oxidized by the tricarboxylic acid cycle, the excess acid could be handled by the tissues for resynthesis of tissue fatty acids and the synthesis of cholesterol and ketone bodies. In the diabetic patient, if the results of the experiments by Bloch just described are correctly interpreted, where there is an impaired carbohydrate metabolism, the emphasis on the synthetic mechanism would be in the direction of cholesterol. It is a clinical fact that ketosis is associated with diabetes. Therefore, cholesterol and ketone bodies would tend to accumulate in the tissues. The hypercholesteremia of diabetes then would be as much a fundamental part of the biochemical de-arrangement of the diabetic state as ketosis.

Hypercholesteremia and Arteriosclerosis

The fact that the blood cholesterol tends to be high in uncontrolled and improperly controlled diabetes appears to be related to the arteriosclerosis and vascular degeneration resulting from the disease. Insulin and dietary control apparently have not solved this problem⁽²⁵⁾. According to Thorn and Forsham⁽²⁶⁾, vascular lesions characterized by atheromatous changes are the most important changes secondary to long-standing diabetes, and are responsible for the death of more than 50 per cent of all patients who have had diabetes longer than 10 to 15 years. There is also evidence to indicate that vascular disease progresses more rapidly in poorly regulated diabetes. It is not known at present why diabetic patients show arterial changes, although it has been assumed that these changes are secondary to the disordered fat metabolism and hypercholesteremia. The subject of lipid metabolism and atherosclerosis has been reviewed recently by Gould⁽²⁷⁾.

At the present time, the relationship between an elevated serum cholesterol and the occurrence or progression of arteriosclerosis in man is still poorly understood. It has been repeatedly demonstrated that it is difficult to influence the serum concentration of cholesterol by feeding cholesterol. During the past several years a number of significant observations concerning the relationship of hypercholesteremia and atherosclerosis have been made. Buck and Rossiter⁽²⁸⁾ have analyzed chemically the lipid content of 31 aortas removed from males with ages distributed from birth to 85 years. The areas in the aorta showing atheroma had an increased concentration of total lipid, total cholesterol, total phospholipid, and neutral fat as contrasted with areas that appeared essentially normal. When 17 of the aortic sections were arranged according to the degree of atheroma, it was found that the cholesterol ester content diminished in proportion to the free cholesterol from a ratio of 1.4:1 to 0.4:1, from the least to the most severely affected sections.

Several papers have appeared recently that may throw some light on the knotty problem concerning the lack of correlation between hypercholesteremia and the development of the disease. Steiner and co-workers⁽²⁹⁾ have reported the successful production of atherosclerosis in dogs with depressed thyroid function by the feeding of thiouracil

and high-cholesterol diets. This work is of interest in regard to the experimental approach to the problem, since it is believed that the diseases of the dog resemble those of man more closely than do diseases in the chicken or rabbit, other species which have been used extensively experimentally.

Messinger and associates⁽³⁰⁾ have reported that in human feeding experiments the feeding of egg yolk powder was followed by an increase in serum cholesterol, whereas feeding of cholesterol without egg yolk powder produced no change in serum levels. They interpret their results as being due to an as yet unidentified substance which alters the absorption or deposition of cholesterol. The agent does not appear to be lecithin, since Steiner and Domanski⁽³¹⁾ have observed that serum cholesterol decreases when soybean lecithin is fed to human beings.

Recently in a series of experiments Gofman and his associates⁽³²⁾ have reported a high degree of correlation between proved (according to Gofman) coronary atherosclerosis and the presence of an abnormal lipoprotein, or "giant molecule," in blood serum. According to these workers, only a specific portion of the serum cholesterol is associated with the abnormal lipoprotein and the development of atherosclerosis. Furthermore, according to these authors, the presence of these cholesterol-bearing lipid and lipoprotein molecules cannot be predicted from the analytic serum cholesterol level. This hypothesis, if confirmed, would resolve the discouraging reports of the lack of correlation between high serum cholesterol levels and the development of the vascular lesions.

That all is not clean-cut, however, is indicated in a statistical study of existing data by Keys⁽³³⁾. This author, contrary to Gofman and his group, finds that there is a substantial correlation between the concentrations in human blood serum of total cholesterol and the "giant" or abnormal lipoprotein molecules. Furthermore, the claim is made that there is no evidence to indicate that the abnormal lipoprotein is more critical than that of total serum cholesterol in predicting the development of atherosclerosis.

It is hoped that a resolution of these conflicting views and continued laboratory investigation along the lines indicated by Gofman will resolve to some degree the difference of opinion as to whether a dietetic re-

striction of cholesterol is of benefit for patients with atherosclerosis, particularly in view of the fact, previously described, that the cholesterol needs of the body can be supplied by biosynthesis independently of the diet.

Summary

An attempt has been made to show how continued laboratory research concerned with unraveling the intricate pattern of intermediary metabolism is of immense value in assisting in the understanding of the origin and progression of metabolic diseases.

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FIBRINOLYTIC ENZYME SYSTEM OF DOG SERUM*

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and

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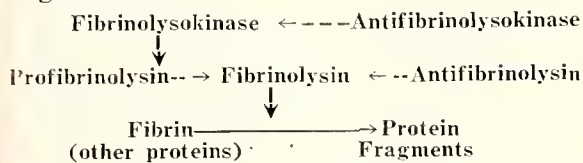
CHAPEL HILL

The phenomenon of whole blood clot lysis has been observed occasionally in blood taken from patients suffering from certain severe illnesses, for example: surgical shock⁽¹⁾, medical shock^(1,2), methyl alcohol poisoning^(2b), and liver disease^(2b,3), and following sudden death⁽⁴⁾. This complete dissolution of the fibrin clot is caused by a proteolytic enzyme, fibrinolysin (lysin, plasmin, tryptase). The mechanism whereby this enzyme appears in the circulating blood has been poorly understood. There are a number of components

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of the fibrinolytic enzyme system which we have undertaken to explore before attempting to produce the pathologic appearance of the active enzyme experimentally. Most of our studies have concerned dog serum and its fractions. Our conception of the components of this enzyme system in normal dog serum is:



Normal serum does not contain the enzyme in its active form—that is, as fibrinolysin (lysin)—but does contain the inactive precursor, profibrinolysin (prolysin). Our studies indicate that an activator, a fibrinolysokinase, is necessary for the conversion of profibrinolysin to fibrinolysin. Although fibrinolysokinase is present in serum, it is probably prevented from acting (under physiologic conditions) by the presence of an antifibrinolysokinase. This last substance, or group of substances, has not yet been isolated and studied, but we have obtained indirect evidence which suggests its existence. Antistreptokinase⁽⁵⁾ is a known example of an antilyso kinase. Antifibrinolysin⁽⁶⁾, a normal serum protein fraction, acts to neutralize active fibrinolysin and other proteases (e.g. trypsin^(6a)).

The studies presented in this paper concern the *in vitro* activation of profibrinolysin by fibrinolysokinases of various types. Fibrinolysokinase activity has been found (1) in certain bacterial products—for example, streptokinase⁽⁷⁾ which activates human prolysin, and staphylokinase⁽⁸⁾ which activates prolysin from a number of animals, (2) in tissues⁽⁹⁾, and (3) in serum⁽¹⁰⁾.

In most experiments we have used a purified dog serum profibrinolysin (see appendix), which is free from antifibrinolysin and serum fibrinolysokinase. Activation of this profibrinolysin is measured by assaying (see appendix) the amount of fibrinolysin which appears as this prolysin is converted to the active enzyme. In preliminary studies an incubation temperature of 37 C. was employed, as activation was rapid at this temperature. It was found, however, that fibrinolysin deteriorates rapidly at 37 C., and accurate estimations of the total amounts formed were

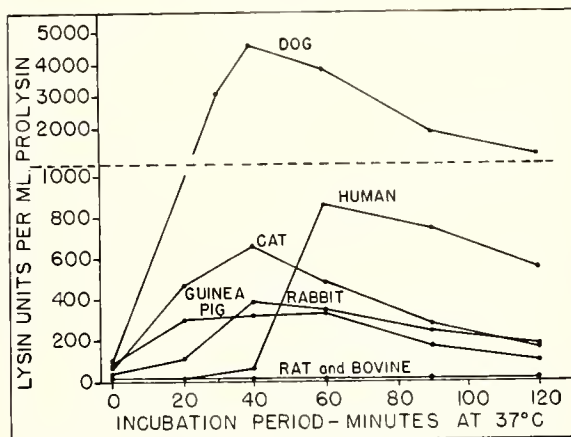


Fig. 1. Staphylokinase. Equal quantities of prolysin prepared from various animal sera were incubated with 2 per cent staphylokinase at 37 C. and the lysin content of each mixture titrated at intervals. (From Lewis and Ferguson^(8c). Courtesy, the American Journal of Physiology.)

impossible. To overcome this difficulty, incubation was carried out at 5 C., at which temperature the formed fibrinolysin was moderately stable over several weeks.

I. Activation of Profibrinolysin by Staphylokinase^(8a)

Activation of human profibrinolysin by streptokinase was studied in some detail by Milstone^(7a) and Christensen^(7b). The fact that certain strains of *Micrococcus aureus* also produced a fibrinolysokinase, staphylokinase, was demonstrated by Lack^(8b) and Gerheim and others^(8a). In a survey of 40 bacterial types⁽¹¹⁾ we were unable to find any other bacterium producing fibrinolysokinase activity. Therefore we chose staphylokinase (see appendix) for intensive study.

Species reactivity

In figure 1 are presented the results of incubating prolysin prepared from sera obtained from seven animal species with equal quantities of 2 per cent staphylokinase at 37 C. Dog prolysin was quickly activated to yield a high titer of fibrinolysin. Human, cat, guinea pig, and rabbit prolysin showed some activation, but yielded considerably lower amounts of fibrinolysin. Rat and bovine prolysin were not activated by staphylokinase. These marked species differences could reflect: (1) incomplete, or lack of, activation by staphylokinase; (2) varying total serum profibrinolysin contents; or (3) varying percentages of the total serum profibrinolysin present in the isolated fractions.

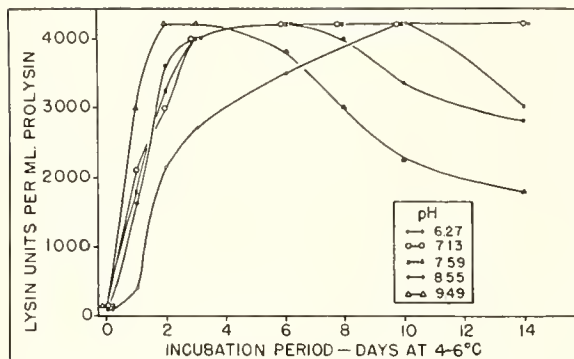


Fig. 2. Staphylokinase. Staphylokinase—dog prolysin mixtures were buffered at the specified pH levels (glass electrode) and incubated at 4-6 C. for 14 days. At intervals the mixtures were sampled, pH's adjusted to 7.7 ± 0.2 and lysin contents titrated. (From Lewis and Ferguson^(8c). Courtesy, the American Journal of Physiology.)

In the case of bovine profibrinolysin the first theory seems correct. No activation by staphylokinase has ever been observed during studies of whole bovine serum and many of its fractions.

Effects of pH

Dog prolysin was activated by 2 per cent staphylokinase in the presence of buffers of various pH levels at 5 C. As shown in figure 2, pH levels between 6.27 and 9.49 had no effect upon the total fibrinolysin yield. Staphylokinase activation was most rapid at alkaline pH and slowest at acid pH. Stability of formed fibrinolysin was greatest at about pH 7.0, and this pH level was chosen for other studies.

Kinetic studies

The same quantities of dog prolysin were activated by different amounts of staphylokinase at pH 7.0. As shown in figure 3 the fibrinolysin yields were the same with staphylokinase concentrations of 2 per cent to 0.25 per cent. Activation rate was more rapid with the more concentrated staphylokinase solutions. On the other hand, if the staphylokinase concentration was kept constant and the profibrinolysin concentration varied, as shown in figure 4, the fibrinolysin yield was directly proportional to the profibrinolysin concentration. These studies indicate that staphylokinase acts in an enzyme-like manner in the conversion of dog profibrinolysin to fibrinolysin.

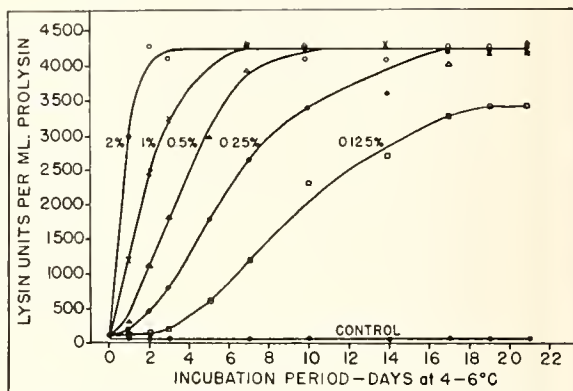


Fig. 3. Staphylokinase. A series of staphylokinase dilutions were incubated (pH 7) separately with the same quantities of dog prolysin and lysin contents determined at intervals. (From Lewis and Ferguson^(8c). Courtesy, the American Journal of Physiology.)

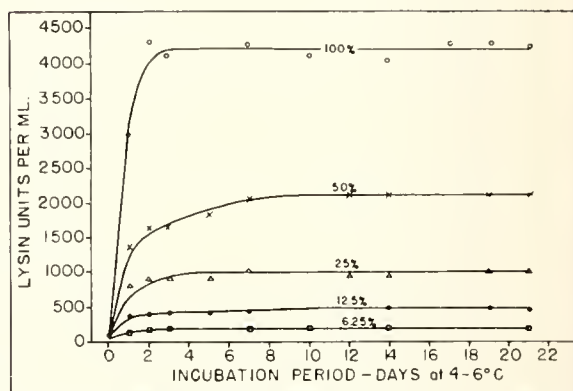


Fig. 4. Staphylokinase. A series of dog prolysin dilutions were incubated (pH 7.0) with the same quantities of 2 per cent staphylokinase and lysin contents determined. (From Lewis and Ferguson^(8c). Courtesy, the American Journal of Physiology.)

II. Activation of Profibrinolysin by Tissue Fibrinolysokinase

Astrup and Permin^(9a) and Permin^(9b) first reported that certain tissues contained kinase activity. Tagnon and Petermann^(9c, d), in a study of mouse lung tissue, found the kinase activity associated with the "microsome" fraction as prepared by the differential fractionation method of Claude⁽¹²⁾. Data presented below include an extensive survey of dog tissues for kinase activity and the preparation of a purified lung fibrinolysokinase. Lung tissue was chosen for special study, as it proved a good source of fibrinolysokinase and could be readily freed from blood by perfusion of the fresh lung with saline.

Survey of various dog tissues for fibrinolysokinase activity⁽⁹⁾

Thirty-five different dog tissues were obtained, thoroughly ground, and fractionated by sedimentation at different centrifugal forces into seven fractions. Each fraction from each tissue was studied for kinase activity by incubation with dog prolysin. When present, significant concentrations of kinase activity were usually found in the *first* fraction, sedimented at 1900 g, which consisted of gross particles, connective tissue, and large cellular fragments; the *fourth* fraction, sedimented at 2700 g, containing Claude's "large granules"; and the *sixth* fraction, sedimented at 42,000 g, consisting of Claude's "microsomes." Activity was consistently absent in the seventh fraction, which consisted of the material not sedimented by 42,000 g for 90 minutes. None of the tissue fractions showed fibrinolytic activity in the absence of dog prolysin. Tissues which contained significant concentrations of fibrinolysokinase were: lung, uterus, pancreas, gallbladder, ovary, lymph gland, placenta, urinary bladder, ureter, vein, bone-marrow, brain, spinal cord, and meninges.

Fibrinolysokinase in different species

"Microsome" fractions were prepared from the lungs of various animal species and tested for their ability to activate human, dog, and bovine prolysin. Mouse, cat, dog, and human lung fractions were able to activate dog and human prolysin to give moderate yields of fibrinolysin and bovine prolysin to give a somewhat lower yield. Rat and guinea pig lung fractions were somewhat less active on all three prolysin. Rabbit lung produced moderate activity from dog prolysin, but only a trace from human and bovine prolysin. Inexplicably, bovine lung fraction had no activating effects on any of the prolysin.

Purification of dog lung fibrinolysokinase

As most of the kinase activity of dog lung was found in the large granule and microsome fractions, these two fractions were combined as crude lung fibrinolysokinase (see appendix for preparation). This fraction probably contains a number of intracellular enzyme systems and many attempts were made to isolate the kinase in a more purified form. The final procedure adopted (see appendix) involves partial dispersment of the granules at low ionic strength and pH

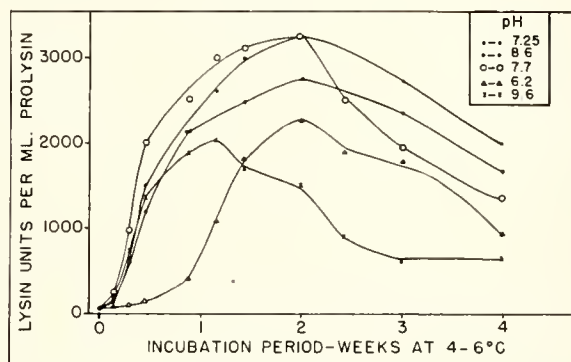


Fig. 5. Lung Fibrinolysokinase. Lung fibrinolysokinase—dog prolysin mixtures were buffered at the specified pH levels (glass electrode) and incubated. At intervals the mixtures were sampled, pH's adjusted to 7.7 ± 0.2 and lysin contents determined.

of 7.5 to 7.7. Part of the kinase then becomes soluble and can be recovered by acid precipitation of the supernatant after removal of the remaining "microsomes" by sedimentation at 42,000 g. Chemical studies of this purified lung fibrinolysokinase suggest that it is, or is closely associated with, a protein having an isoelectric point at pH 3.8.

Effects of pH

The effects of pH on activation of dog prolysin by purified dog lung kinase were studied by incubating these substances together in the presence of buffers at various pH levels. As shown in figure 5, pH had a marked effect, not only on the rate of fibrinolysin formation, but also upon the yields of fibrinolysin. Highest yields were obtained at pH 7.25 and 7.7. Even these "maximal" yields of 3200 units were not as great as the potential yield of 4600 units obtainable from this lot of profibrinolysin by staphylokinase activation.

Reaction kinetics

Prolysin was incubated with various dilutions of purified lung kinase at pH 7.3. As shown in figure 6, both the rate of activation and the final fibrinolysin yields were dependent upon the concentrations of the kinase. In the next experiment the lung kinase concentration was maintained constant and the prolysin concentration varied. As shown in figure 7, the fibrinolysin yield was apparently dependent upon the initial prolysin concentration.

Simultaneous studies were made with staphylokinase on the prolysin employed in these experiments, and showed that the po-

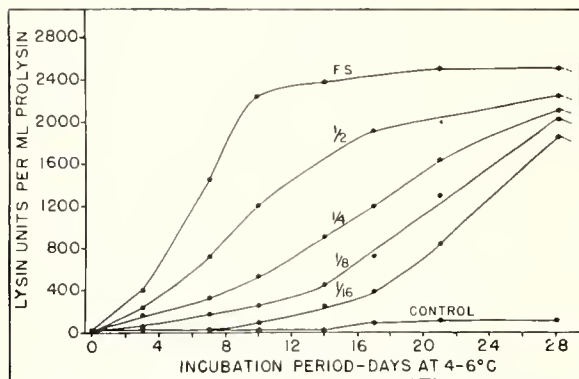


Fig. 6. Lung Fibrinolysokinase. A series of purified dog lung kinase dilutions were incubated (pH 7.3) separately with equal quantities of dog prolysin and lysin contents determined at intervals.

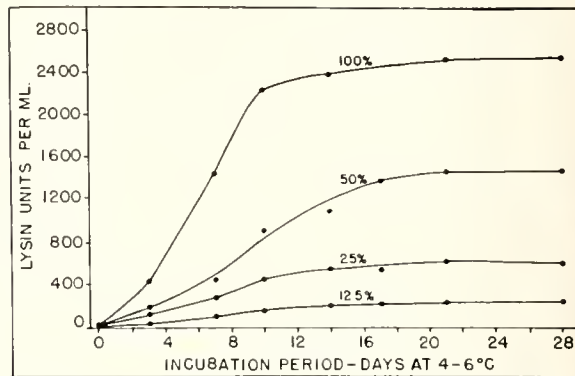


Fig. 7. Lung Fibrinolysokinase. A series of dog prolysin dilutions were incubated (pH 7.3) with full strength dog lung kinase and lysin contents titrated at intervals.

tential fibrinolysin yield was 4200 units rather than the 2500 units obtained with the lung kinase. Addition of staphylokinase to the lung kinase—prolysin mixtures after four weeks' incubation did not increase the fibrinolysin yield, suggesting that no profibrinolysin remained in these mixtures. Deterioration of the formed fibrinolysin was not noted in these experiments. A possible explanation for the discrepancy in fibrinolysin yields between staphylokinase and lung kinase activation is that lung kinase converts prolysin to active lysin plus an inert protein, while staphylokinase converts it completely to lysin. Further investigation will be necessary to decide this point.

III. Activation of Prolysin by Serum Fibrinolysokinase

The spontaneous appearance of fibrinolysin in certain serum fractions^(13,14) and in whole serum treated with chloroform^(15,16) has been attributed to various mechanisms involving either (a) the removal of antifibrinolysin from a fibrinolysin-antifibrinolysin complex^(15,17) or (b) an autocatalytic activation of profibrinolysin after removal of antifibrinolysin⁽¹⁸⁾. We have discarded both of these theories on the grounds that (a) after the removal of antifibrinolysin, fibrinolysin does not suddenly appear, but develops gradually; and (b) our dog profibrinolysin does not usually activate spontaneously, nor can it be activated consistently by the addition of fibrinolysin. Although fibrinolysin appears in whole serum after treatment with chloroform, it does *not* appear in the isolated

profibrinolysin, which has been similarly treated. Therefore we have postulated that the so-called "spontaneous" activation of whole serum profibrinolysin is due to the action of a *fibrinolysokinase*—present in serum and independent of blood cellular elements. The experimental data presented below substantiate this theory.

Preparation and action of serum fibrinolysokinase⁽¹⁰⁾

Many attempts were made to isolate from serum a fraction which was free from profibrinolysin and antifibrinolysin, and which was capable of activating profibrinolysin. The serum fraction used in this experiment, Fraction K (see appendix), was prepared by ethanol fractionation. It was found to be free from profibrinolysin, but contained a trace of antifibrinolysin. Figure 8 illustrates the effect of this Fraction K on prolysin. After an initial lag the prolysin *plus* fraction K mixture (P+K) developed a high titer of fibrinolysin (3730 units) comparable to that developed by this prolysin plus staphylokinase (4200 units). The control curves (P, K) show that significant titers of fibrinolysin were not developed in the prolysin or the fraction K when they were incubated separately.

Are cellular elements responsible for serum fibrinolysokinase?

Although previous studies in this laboratory⁽¹¹⁾ did not show any appreciable fibrinolysokinase activity in erythrocytes, leukocytes or platelets, it was thought possible, especially in view of the work of Permin^(9b), that blood cellular elements might be con-

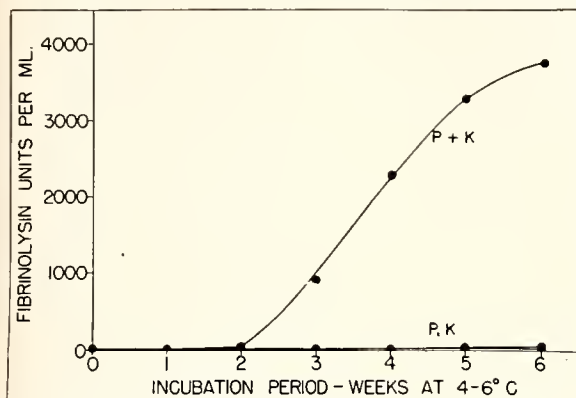


Fig. 8. Serum Fibrinolysokinase. Dog prolysin (P) and dog serum kinase (K) were incubated together (pH 7.3) and the lysin content determined (curve P + K). Controls (P.K) consisting of dog prolysin plus saline and lung kinase plus saline were also incubated and tested for lysin contents. (From Lewis and Ferguson⁽¹⁰⁾. Courtesy, the Society for Experimental Biology and Medicine.)

tributing fibrinolysokinase activity to serum. This problem was approached by following the appearance of fibrinolysin in chloroformed serum obtained from plasmas centrifuged at very low and very high speeds. The "platelet-rich" plasma was centrifuged at 320 g for 15 minutes and contained many erythrocytes, leukocytes, and platelets. The "platelet-poor" plasma was centrifuged at 42,000 g for 60 minutes and showed no cellular elements on smear. Sera were obtained from both plasmas in two ways: (1) by recalcification: IA, IIA, and (2) by thrombinization: IB, IIB. All sera were treated with chloroform in the same manner. As shown in figure 9, fibrinolytic activity developed at approximately the same rate and to the same extent in each serum, and we concluded that the blood cellular elements did not contribute to the fibrinolysokinase activity of serum.

Summary

Dog serum profibrinolysin can be activated to fibrinolysin by at least three fibrinolysokinases. Staphylokinase apparently acts as an enzyme in causing the complete conversion of profibrinolysin to the active enzyme. Although it acts over a wide pH range, the rate of activation is more rapid on the alkaline side. Fibrinolysokinase is present in a wide variety of tissues, of which lung has proved a potent and convenient source. Studies on a purified lung kinase show that it activates dog prolysin incompletely, apparently converting some to an inert protein rather than to the active enzyme. The pH

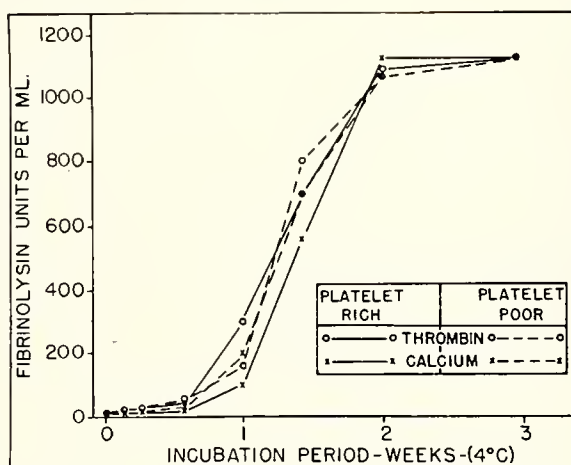


Fig. 9. Chloroform Sera. Oxalated dog blood was centrifuged at high and low speeds. The plasmas were recalcified or thrombinized and the resulting sera shaken with $\frac{1}{2}$ volume of chloroform. Lysin contents of each serum were titrated at intervals. (From Lewis and Ferguson⁽¹⁰⁾. Courtesy, the Society for Experimental Biology and Medicine.)

range for maximal lung kinase activity lies between 7.25 and 7.7. Fibrinolysokinase is also present in serum, and is shown to be independent of the cellular elements. The kinase activity can be isolated in a serum protein fraction. Additional studies are underway to determine the mode of action of serum fibrinolysokinase.

Appendix

Assay of Fibrinolysin. Fibrinolytic activity is assayed by the rate of lysis of a standard fibrin clot, prepared as follows:

Tube 1: 0.5 ml. 1% Bovine Fraction I (Armour)*
0.5 ml. borate buffer, pH 7.7
(11.25 Gm. H_3BO_3 , 2.25 Gm. NaCl, 4.00 Gm. $Na_2B_4O_7 \cdot 10 H_2O$ in distilled water to 1 liter)

Tube 2: 1.0 ml. test material
0.2 ml. thrombin (20 units/ml.)

Tubes 1 and 2 are mixed by pouring back and forth four times and the final tube placed in a 37 C. water bath. Lysis time is measured on a stopwatch from time of mixing to time of complete dissolution of the gelatinous fibrin clot, and is then converted to units by reference to a standard curve (fig. 10), prepared by determining lysis times of precise dilutions of human, dog, and bovine fibrinolysins. An arbitrary reference point of 100 units equal to a lysis time of five minutes was chosen. The pH optimum for fibrinolysis was found to be 7.7 to 8.25. All test solutions are adjusted to this range before assaying for fibrinolysin.

Preparation of Dog Serum Profibrinolysin (Prolysin). Hemoglobin-free oxalated plasma is recalcified and the resulting serum chilled to 0 C. and

*The final fibrinogen (clottable protein) concentration in the standard fibrin clot is 0.136 per cent. Each new lot of Fraction I is analyzed and the concentration adjusted so that 0.5 ml. contains 3.0 mg. of clottable protein.

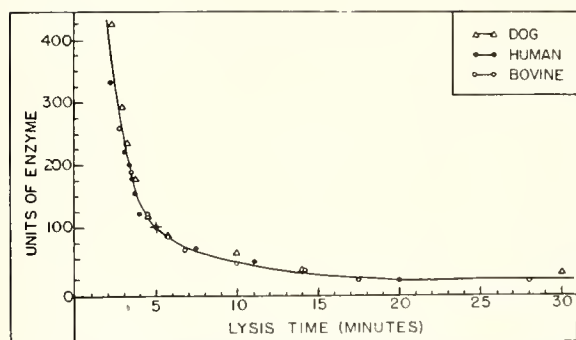


Fig. 10. Standard Fibrinolysin Curve. (From Lewis and Ferguson^(6d). Courtesy, the Journal of Clinical Investigation.)

brought to one-third saturation with ammonium sulfate (saturated solution at 0 C.). The precipitate, recovered by centrifugation, is dissolved in distilled water and dialysed 18 hours against cold running tap water (4 C.). The final precipitate is dissolved in one-fourth the original serum volume (corrected for diluents).

Preparation of staphylokinase. Stock medium is prepared by dissolving 25 Gm. Bacto-Heart Infusion Broth, dehydrated (Difco) and 0.5 Gm. dextrose in 1 liter of distilled water and adjusting pH to 7.6. Small flasks of this medium are inoculated, incubated 20 to 22 hours at 37 C. and smears checked for purity of culture. The contents of these flasks are then poured into 1 liter flasks of stock medium, incubated 18 hours and smears again checked for purity. Bacteria are removed by centrifugation, the supernatant chilled to 5 C., and three times the volume of cold 95 per cent ethanol added. After standing 1 hour at 5 C. the resulting precipitate is recovered by centrifugation, suspended in absolute alcohol, and dried on a Büchner funnel by alternate washings with alcohol and ether. The dry powder is stored in a desiccator.

The best yields of active staphylokinase are usually obtained from freshly isolated strains of *Micrococcus aureus*. Survey of a group of strains may be necessary to choose a potent staphylokinase producer. This is done by inoculating 5 ml. tubes of stock medium with each strain, incubating 20 hours, removing bacteria by centrifugation and testing the supernatant by incubating it with prolysin for one hour at 37 C. and determining the fibrinolytic activity. Only those strains which produce lysis of the standard clot in three minutes or less are used to prepare the concentrated kinase.

Crude Lung Fibrinolysokinase. Freshly obtained dog lungs are perfused free from blood with 0.85 per cent sodium chloride (saline) and macerated in a Waring Blendor for five minutes with frozen saline, buffered at pH 7.3 to a final phosphate concentration of 0.0025 M (buffered saline). The mixture is strained, ground thoroughly in a mortar and centrifuged at 5000 RPM (4200 g) for 15 minutes. The sediment is again treated with the buffered saline ice in the Blendor and recentrifuged. The two supernatants are combined and centrifuged for 90 minutes at 16,000 RPM (42,000 g). The small grey sediment so obtained is washed with buffered saline and recentrifuged as before. This washed sediment is dispersed in a volume of buffered saline equal in milliliters to one-half the original lung weight in grams.

Purified Lung Fibrinolysokinase. Crude lung kinase is diluted tenfold with 0.0001 N NaOH and dialysed at 5 C. for 18 hours against repeated changes of 0.0001 N NaOH. The dialysed material

is centrifuged at 42,000 g for 90 minutes. Although the sediment retains some kinase activity it is not used routinely. The cold, slightly opaque supernatant is brought to pH 3.8 by addition of 0.1 N HCl. A flocculant precipitate promptly forms and is collected by centrifugation (4200 g for 15 minutes). This precipitate is dispersed in saline and the pH adjusted to approximately 8.0, at which point most of the precipitate dissolves. Reprecipitation is carried out one or more times. The final precipitate is dispersed in a volume of saline equal in milliliters to one-fifth the original lung weight and the pH adjusted or buffered as desired.

Serum Fibrinolysokinase (Fraction K). Pooled whole dog serum is chilled to 5 C. and an equal volume of cold absolute ethyl alcohol added. The precipitate so formed is discarded, and an additional volume of alcohol equivalent to 24 per cent of the original serum volume is added. The resulting precipitate is collected by centrifugation and dissolved in one-third the serum volume of saline. Traces of alcohol are removed by passing a stream of air over the solution. The pH is adjusted to 7.3.

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VERATRUM

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Sometimes in the history of a useful drug there is a period during which it may be almost completely forgotten. Between the years 1918 and 1935 medical literature records practically no evidence of interest in the pharmacology of veratrum as a hypotensive agent except in the observations published in 1925 by William deBerniere MacNider⁽¹⁾. At that time veratrum was considered by all but the oldest practicing physicians to be too dangerous to use. They had used the drug with good results in the treatment of eclampsia, where it slowed the heart rate and prevented convulsions. MacNider pointed out in his report that digitalis had passed through comparable periods of disfavor before sufficient pharmacologic study and subsequent standardization proved it to be a dependable therapeutic agent. He thought veratrum deserved the same careful study.

Using the crude tinctures of veratrum which were available then, MacNider demonstrated in dogs that the drug lowered blood pressure even when the bradycardia was prevented by atropine or vagus section. He thought that veratrum might be useful in the treatment of hypertensive crises. In the last few years pharmacologists and clinicians, working closely with the pharmaceutical chemists who have isolated active fractions and pure alkaloid compounds from *V. viride* and *V. album*, again raise the hope of safe and useful application of these substances in the management of the

hypertensive patient.

Disputes over the relative merits and dangers of veratrum are nearly as old as the beginnings of medicine itself. Ctesias (*ca.* 461 B.C.) wrote in his book on veratrum that he regarded the drug as a dangerous one; this was just one of the many points on which he disagreed with Hippocrates. There is repeated evidence in the writings of the ancients that veratrum was used by the medical men of Greece, Assyria, and Egypt. The American Indians, among them the Apaches, Penobscots, and Micmacs, employed veratrum in their medical practices.

Definition

What is veratrum? Veratrum is the generic name for two plants of the order Liliaceae, namely *Veratrum album*, which grows in the Old World, and *Veratrum viride*, which is indigenous to North America. These plants were for many years misnamed "hellebore." The term "veratrum" is also used to describe the alkaloid extracts derived from these plants, the rhizomes being the usual source of the extracts. Veratrine, on the other hand, is the name applied to extracts of the sabadilla plant, which grows in Mexico, these extracts being made from the seeds⁽²⁾. Some of the alkaloids extracted from sabadilla resemble chemically and pharmacologically certain alkaloids from *V. album* and *V. viride*.

Isolation and Purification of Veratrum Alkaloids

The chief objection to veratrum for many years was the fact that the preparations which were available were not dependable. Their potency varied widely from one lot to another, and preparations made by different manufacturers were not comparable. The fluid extract and the tincture, both prepared from the rhizome of the *Veratrum* plants, were among the earlier preparations. It was not until recently that it was recognized that the alkaloids derived from *V. album* differed from those from *V. viride*. The first purified alkaloids were described in 1820, but up to 15 years ago at least half of the alkaloidal content of veratrum was still in the amorphous fraction. In the last few years several active alkaloids have been crystallized from this fraction, but there are probably many more yet to be isolated.

One can readily imagine some of the difficulties in studying the veratrum alkaloids

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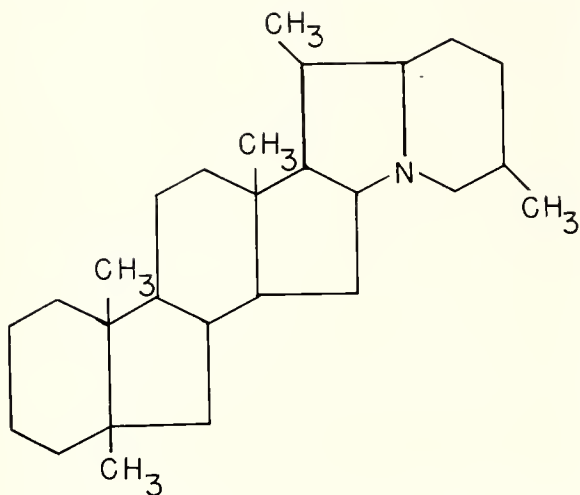


Fig. 1. Nucleus of a typical veratrum alkaloid.

when he considers that already more than 20 different alkaloids have been isolated and purified. In nature, veratrum alkaloids occur as alkamines, esters, and glycosides, besides the as yet non-purified amorphous fractions.

The nucleus of the purified crystalline alkaloids exhibits a striking similarity to that of the heterocyclic alkaloids of *Digitalis*, *Aconite*, *Solanum*, and *Zygadenus*. There is a marked similarity to the smaller nuclei of the steroid hormones. This similarity has prompted pharmaceutical chemists to attempt the synthesis of cortisone from jervine, one of the most abundant of the isolated veratrum alkaloids, which has little if any potency as a hypotensive drug⁽³⁾.

There are at least three proprietary preparations on the market. Veratrone (Parke, Davis and Company) is an aqueous extract of the rhizome of *V. viride*. It is assayed chemically for total alkaloids. Vertavis (Irwin, Neisler and Company) is a tablet prepared from the whole rhizome. It is assayed using the production of cardiac arrest in the water flea *Daphnia magna* as an estimate of its potency. Veriloid (Riker Laboratories) is a tablet containing a constant fraction of the total alkaloids. It is assayed for hypotensive potency in the anesthetized dog.

Mode of Action

The pharmacology of veratrum alkaloids is almost unbelievably complex. The bradycardia induced by veratrum has been proven to be reflex in nature, with both afferent and efferent fibers running in the vagus nerves. The vasodilation and lowering of blood pres-

sure following administration of veratrum has been thought variously to be a direct action on arterioles, a reflex action dependent upon special receptors in the heart, lungs, and carotid sinus area, or the result of direct action on the vasomotor center of the central nervous system.

Recent investigation has ruled out the possibility of direct action on the arterioles⁽⁴⁾, and the special receptors in the heart, lungs, and carotid sinus area have been shown to be related principally to the bradycardia, but are not necessary to the hypotensive effect⁽⁵⁾. Ingenious experiments devised to separate the circulation in the head of a dog from the circulation in the rest of its body suggest that the receptors responsible for initiating the vasodepression are located in the head⁽⁶⁾. It has been established that veratrum does not block the effects of stimulation of sympathetic nerves, but on the other hand veratrum vasodilatation does not occur in sympathectomized limbs. These recent observations suggest that veratrum may act on a center or centers in the central nervous system to diminish sympathetic discharges which normally travel via sympathetic nerves to produce constrictor tone of arterioles. Another possibility is that veratrum may operate via vasodilator nerves which accompany these sympathetic nerves⁽⁷⁾.

Certain of the veratrum alkaloids have been shown experimentally to increase the force of contraction of the heart. Continued administration of certain proprietary veratrum preparations has been seen to result in a decrease in heart size and a reversion of electrocardiographic findings toward normal in hypertensive patients⁽⁸⁾.

After the blood pressure is reduced in patients who are given veratrum, blood flow through renal, hepato-portal, and skeletal muscle circuits is maintained at normal rates. Glomerular filtration rate and renal plasma flow are normal at the lowered level of blood pressure. Cardiac output is unchanged in the normal heart, but in the failing heart cardiac output may increase with a reduction in the pressure in the pulmonary circuit^(7, 9). Clinical observers have reported that they have seen retinal arterioles dilate in patients who were given veratrum preparations.

Avoidance of Undesirable Side Effects

Two objectionable effects of early vera-

trum preparations were an emetic action and a depression of respiration. It has since been shown that the dose which produces respiratory depression is much higher than that which is necessary to lower blood pressure. The emetic action of veratrum is produced in two ways, through local irritation of gastrointestinal mucosa and by direct action on the vomiting center. Parenteral administration circumvents the local effect, and adjustment of dosage of both oral and parenteral preparations will often avoid nausea and vomiting of central origin. Veriloid is reported to cause less nausea and vomiting than did earlier preparations⁽¹⁰⁾.

Clinical Applications

In eclampsia

One of the most encouraging applications of veratrum in therapeutics is in the treatment of eclampsia. Older practitioners in the South who had used it observed that if the heart rate were reduced and maintained at 65 per minute or below, the eclamptic patient would be free from convulsions. It appears now that the hypotensive effect which accompanied the bradycardia was more important. The bradycardia served as a rough guide to the control of dosage in the cruder preparations which were then available.

More recently, in a long series of cases of frank eclampsia where veratrum was administered after the first convulsion, only 2 maternal deaths occurred in 120 consecutive cases⁽¹¹⁾. These 2 deaths were ascribed to sepsis and not eclampsia. Besides veratrum, the patients received magnesium sulfate orally and intramuscularly, forced fluids, alkalies, a low protein diet, minimal sedation, with conservative management of pregnancy and delivery. Veratrone, the aqueous extract of veratrum, was used in these patients.

An interesting difference in the response to veratrum of the normal pregnant patient and the toxemic patient has been reported⁽¹²⁾. A certain dose of veratrum lowered the blood pressure of patients with toxemic pregnancy, but not those with normal pregnancy. In contrast, a given dose of tetraethyl ammonium chloride lowered the blood pressure in normal pregnancy but not in toxemic pregnancy.

In hypertension

Clinical trials of the available veratrum preparations in hypertensive patients have

resulted in varying degrees of success^(8, 10, 13, 14, 15). Some investigators recommend their routine use in hypertension. Others feel that they should be reserved for use in hypertensive crises. Still others suggest that veratrum should be used in hypertension resistant to other forms of treatment, and in hypertension accompanied by cardiac failure.

One group has been studying the clinical action of protoveratrine, a purified ester alkaloid from *V. album*. These workers have administered this single alkaloid to hypertensive patients and demonstrated that it has high hypotensive potency in clinical doses without emetic activity⁽¹⁶⁾. This particular alkaloid, which is administered parenterally, is not available commercially. Two other pure alkaloids, germitrine and germidine, recently isolated from the amorphous fraction of *V. viride*, have been shown to have high hypotensive potency in man, but they appear to have more emetic effect⁽¹⁷⁾.

Conclusion

There are still many things we would like to know about how veratrum works. But recent research has given us some understanding of its mechanism of action. The studies on different fractions of the crude preparations raise the hope that out of this mixture of alkaloids there will be obtained an agent which will promote depression of the blood pressure in hypertensive patients without undesirable side effects.

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THE SECRETION AND ENTERO- HEPATIC CIRCULATION OF BILE ACIDS: REPLACEMENT OF BILE ACIDS IN BILIARY INSUFFICIENCY

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An inadequate flow of bile into the intestinal tract can result from a number of conditions, such as severe liver disease, biliary fistulas, biliary obstruction by gallstones or tumors, and congenital atresia of the bile ducts. In severe hepatic disease, the bile which is secreted may be deficient in bile acids. If deprivation of bile persists for several weeks or months in experimental animals or in human beings, nutritional and digestive disturbances, anemia, and a tendency toward abnormal bleeding may ensue.

Biliary insufficiency often causes inadequate intestinal absorption of fat-soluble vitamins, which can result in serious manifestations of avitaminosis even when normal amounts of the vitamins are included in the diet.⁽¹⁾ The relationship of biliary insufficiency to symptoms such as anorexia, nausea, and distention which accompany certain diseases of the liver and of the gastrointestinal tract has not been determined in detail, but such relationships have been suggested⁽²⁾. The bile acids are the constituents of bile which are principally responsible for its effectiveness in promoting the intestinal absorption of fats and fat-soluble vitamins⁽¹⁾, and the bile acids are considered to be concerned in the relief of other symptoms of biliary insufficiency by replacement therapy with preparations of desiccated bile^(2a). A brief review of the subject of the secretion of bile acids may be desirable at this time when the principal gross aspects of biliary secretion have been established, and when investigations of the details of the physiologic synthesis of bile acids are being commenced.

Comparison of Human and Animal Bile

A comparison of the bile acid composition of the bile of man with that of the ox and of the hog is desirable, inasmuch as desiccated bile of the two latter animals often is used for replacement-therapy in man^(2a, 3). The bile acids of man, the ox, and the hog consist of a steroid nucleus, the aliphatic side-chain of which possesses a carboxyl group which usually is conjugated through amide linkage with glycine or taurine. In the bile of man and of the ox, approximately 50 to 75 per cent of the total quantity of bile acids* is conjugated with glycine, and the principal portion of the remainder is conjugated with taurine⁽⁴⁾. However, this proportion is somewhat variable, and often a considerable fraction of the bile acids in bile is in the "free" or unconjugated form⁽⁵⁾. The bile acids of hog bile are conjugated solely with glycine^(4, 6).

The bile acids of these three animals differ also in the substituents of the steroid nucleus and in the relative proportions in which they are present in the bile. The principal bile acid (steroid portion of the conjugated acid) of hog bile is a-hyodesoxycholic acid (3,6—dihydroxycholic acid)⁽⁶⁾. The principal bile acid in the bile of man and of the ox is cholic acid (3,7,12—trihydroxycholic acid), but important amounts of desoxycholic acid (3,12—dihydroxycholic acid) and chenodesoxycholic acid** (3,7—dihydroxycholic acid) also are present⁽⁷⁾. Hyodesoxycholic acid has not been found in the bile of man and the ox, and cholic acid is absent from the bile of the hog. Traces of lithocholic acid (3-hydroxycholic acid) have been found in ox bile⁽⁸⁾, in the bile of man⁽⁹⁾, and in a gallstone from the gallbladder of a hog⁽¹⁰⁾. Appreciable quantities of keto-bile acids have been found in hog bile (principally 3-hydroxy-6-ketocholic acid⁽¹¹⁾) and in the

*It is customary to refer to the bile "acids" in bile, although it is understood that at the pH of bile these acids are almost completely ionized as anions, which are matched by sodium, potassium, and calcium cations.

**This bile acid is also termed anthropodesoxycholic acid.

Table 1

Composition of an Average Sample of Gallbladder Bile of the Hog

Cation and Anion Content in milli-equivalents per liter				
Na	K	Ca	Mg	Free Choline
175	19.7	9.8	4.8	0.76
Cl	HCO ₃	Bile Salt		Total cations
32.0	15.7	165		210.1
				Total anions
				212.7

Bile acids (Gm. per 100 ml. of bile)

Hyodeoxycholic acid	3-Hydroxy-6-ketoallocholanic acid	Total bile acids	Glyco conjugated	Total conjugated
5.69	0.77	6.46	5.49	5.91

Miscellaneous Organic Constituents (mg. per 100 ml. of bile)

Cholesterol	Bilirubin	Mucin	Total Fatty Acids after Hydrolysis	Total Phospholipid
161	36.5	692	1470	1680

bile of the dog⁽¹²⁾. It is not certain whether these keto bile acids are produced in the natural biliary secretory processes of these animals or whether they are formed by bacterial oxidation of the hydroxycholic acids in the intestinal tract, from which they might be reabsorbed into the enterohepatic circulation. Such bacterial oxidation of hydroxycholic acids occurs in the cecum of the guinea pig⁽¹³⁾.

Comparison of hog bile before and after desiccation

Comparative analyses have been reported for pooled samples of fresh gallbladder bile of the hog before and after desiccation by a vacuum process^(11b). Hog bile dried according to this method is soluble in distilled water to the extent of 13.9 Gm. per 100 ml. at 25 C. Nine grams of the dried bile corresponds to 100 ml. of the average sample of gallbladder bile of the hog. Solutions prepared from the desiccated bile are identical with the original fresh bile, with the exception of partial hydrolysis of phospholipids and of small increase in pH due to loss of carbon dioxide during drying. These preparations of dried bile are useful for replacement therapy^(2a,3a). Typical analyses of gallbladder bile of the hog are presented in table 1. Average concentrations of bile acids in ox gallbladder bile are recorded in table 2.

Table 2

Average Concentrations of Bile Acids in Gallbladder Bile of the Ox

Bile acid	Concentration (Gm. per 100 ml.)
Cholic acid	4.6
Total dihydroxycholic acids	1.5
Desoxycholic acid	1.1
Chenodesoxycholic acid	0.4
Total bile acids	6.3
Total conjugated bile acids	6.1
Tauro-conjugated bile acids	3.1
Glyco-conjugated bile acids	3.0

The Formation of Bile Acids

It seems to be generally accepted that the liver is the principal if not the only site of formation of the bile acids^(14a). The recent work of Bloch and others^(14b) has provided the first clear indication of a precursor in the physiologic synthesis of bile acids. Cholesterol labeled with deuterium in the rings and in the side-chain was administered intravenously to a dog in which an anastomosis had been established between the gallbladder and the pelvis of the kidney. The cholic acid isolated from the urine of this dog had an isotope concentration of the same order of magnitude as the cholesterol of the blood and of the bile. Assuming that the circulating cholesterol provided the immediate precursor, it was calculated that a minimum of two thirds of the cholic acid was formed from this sterol^(14b).

Bloch and Rittenberg had demonstrated previously that acetic acid is one of the precursors of cholesterol in mice and rats⁽¹⁵⁾, and presumably in other animals. They have shown that the liver is a site for the synthesis of cholesterol from acetate, whereas under comparable conditions no synthesis of this sterol was observed in kidney, testes, spleen, or the gastrointestinal tract⁽¹⁶⁾. It is not yet known whether cholesterol is an obligatory precursor for the physiologic synthesis of bile acids. There appears to be a possibility that at least a small fraction of the total bile acids might be synthesized directly from simpler precursors such as acetic acid. There also is no information available concerning the physiologic synthesis of the mono and dihydroxycholic acids, or regarding the possible metabolic relationship of these bile acids with the trihydroxycholic acid, cholic acid.

There is evidence that conjugation of the bile acids with glycine or taurine occurs after the complete synthesis of the steroid portion

of the molecule⁽¹⁷⁾. Josephson and others^(17a) injected 250 mg. of cholic acid intravenously into cats and rabbits with biliary fistulas. During the first 30 minute period of rapid biliary excretion of the bile acid, the principal portion was excreted in unconjugated form, but in subsequent periods a greater and greater proportion of the total "extra" bile acids appeared in conjugated form. Whipple and others^(17b,c) have concluded from experiments on the oral administration of cholic acid to dogs that conjugation occurs to the degree in which glycine or taurine is available for this process. These results are similar to those obtained by Griffith and Lewis⁽¹⁸⁾ in studies on the conjugation of benzoic acid with glycine. Various investigators⁽¹⁹⁾ have reported that cholic acid synthesis appears to depend upon the amount of protein in the diet. Smith and Whipple^(19a) found that meat and meat products, including beef heart, kidney and liver, when fed to bile fistula dogs cause a notable rise in the output of bile acids.

It is not clear what relationship these earlier observations have to the more recent discovery^(14b) that cholesterol is an important precursor of cholic acid. The stimulatory effects of ingestion of liver and kidney probably are not due to their content of cholesterol, since the feeding of cholesterol to animals with biliary fistulas does not cause an increase in output of cholic acid^(19a). This observation seems to be in conflict with the conclusion of Bloch and colleagues^(14b) until one recalls that there always are large stores of cholesterol in the tissues of animals, and the *supply* of cholesterol for synthesis of cholic acid may not be a limiting factor. Perhaps the stimulatory effect of proteins may be a function of the intact protein, possibly mediated by a hormonal mechanism.

In this connection it may be pertinent to consider the report of Annegers and Friend⁽²⁰⁾ that the biliary output in dogs increases linearly as the casein content of the diet is increased, but the effect cannot be attributed to amino acids since hydrolyzed casein does not produce the same response. If the stimulation of cholic acid output involves a hormonal mechanism, it seems probable that the hormone is not secretin, inasmuch as Grossman and others⁽²¹⁾ have found that secretin causes an increase in the volume-rate of flow of bile in human subjects with T tubes in the common bile duct, but

the output of cholic acid is not increased. They concluded that secretin is a hydrocholeretic agent with an effect similar to that produced by injections of dehydrocholic acids^(22a).

The Enterohepatic Circulation of Bile Acids

The existence of an enterohepatic circulation of bile acids has been recognized for many years, and the evidence has been summarized in reviews^(4,22). Such circulation is important, since it permits the accumulation of bile acids in the circuit to levels which would be unattainable by the normal rate of synthesis of bile acids if unaided by absorption from the intestine and recirculation through the liver and the biliary system.

Whipple and Smith^(19a,23) have concluded that the rate of synthesis and the final quantitative level of bile acids in the circuit are dependent in part upon the diet of the animal. Berman and others^(19b) explained the attainment of a relatively constant concentration of bile acids in the circuit on the basis of a steady-state equilibrium between synthesis and loss of bile acids. Irvin and Johnston have investigated some of the quantitative details of enterohepatic circulation in hogs with biliary fistulas⁽²⁴⁾ and in human patients with choledochostomy drainage⁽²⁵⁾. Inasmuch as cholic acid and the conjugated cholates are absent from the normal biliary secretion of the hog, these bile acids were used as "tracers" with which various quantitative aspects of enterohepatic circulation could be evaluated⁽²⁴⁾. The loss of conjugated cholates during an average circulation time of 10 hours was 9 to 11 per cent of the amount administered, or of the total amount in circulation if repeated doses had been given with intervening periods of recirculation. The percentage loss of hyodesoxycholic acid (the naturally occurring bile acid of the hog) during circulation was comparable to the loss of cholic acid. Thus cholic acid is efficiently handled by the hog, although it is not a naturally occurring bile acid in the biliary secretion of this animal.

The utilization of a "foreign" bile acid is of interest in connection with the use of animal bile for replacement-therapy in humans^(2a,3a,25). The average rate of synthesis of hyodesoxycholic acid in hogs was found to be 5.4 mg. per kilogram of body weight per hour, and the average equilibrium level of hyodesoxycholic acid attained by contin-

Table 3

Excretion of Various Bile Acids in the Choledochostomy Drainage Bile of Patient (Case 1), and the Effect of Oral Administration of Desiccated Hog Bile

Days Postoperative	Hyodesoxycholic Acid Content of Hog Bile Administered (millimoles per day)	Average Volume of Bile Excreted per Day (ml.)	Concentration of Bile Acids in Drainage Bile (millimoles per liter)				
			Cholic Acid	Desoxycholic Acid	Hyodesoxycholic Acid	Total Dihydroxycholic Acids	Total Bile Acids
2	0	425	0	0	0	0	
3-4	0	370	0	trace	trace	trace	
5-6	0	460	0	0.10	0.10	0.10	
7-8	0	540	trace	0.15	0.20	0.20	
9-10	0	380	0.30	0.20	0.32	0.62	
11	0	510	0.60	0.40	0.63	1.23	
12	0	580	1.2	0.46	0.82	2.02	
13	0	540	2.9	0.70	1.20	4.1	
14	0	530	4.1	0.95	1.7	5.8	
15	0	610	5.8	1.6	2.4	8.2	
16	0	505	6.9	2.1	3.6	10.5	
17	0	605	8.3	3.0	5.2	13.5	
18	0	550	9.4	3.0	5.4	14.8	
19	0	560	9.8	3.4	5.7	15.5	
20	0	590	9.2	3.1	5.4	14.6	
21	0	600	10.0	3.2	5.8	15.8	
22	2.8	985	10.2	3.0	8.1	18.3	
23	2.8	1010	9.7	3.3	7.7	17.4	
24	0	790	12.2	3.9	6.5	18.7	
25	0	685	14.3	4.6	8.3	22.6	

Table 4

The Excretion of Conjugated Bile Acids in the Choledochostomy Drainage Bile of Patient (Case 1), and the Effect of Oral Administration of Desiccated Hog Bile

Days Postoperative	Hyodesoxycholic Acid Content of Hog Bile Administered (millimoles per day)	Concentration of Bile Acids in Drainage Bile (millimoles per liter)			
		Total Bile Acids	Total Conjugated Bile Acids	Taurine-conjugated Bile Acids	Glycine-conjugated Bile Acids
2	0	0	0		
3-4	0	trace	trace		
5-6	0	0.10	0.06	0.02	0.04
7-8	0	0.20	0.13	0.05	0.08
9-10	0	0.62	0.45	0.18	0.27
11	0	1.23	0.92	0.38	0.54
12	0	2.02	1.55	0.61	0.94
13	0	4.1	3.3	1.35	1.95
14	0	5.8	4.8	2.1	2.7
15	0	8.2	6.4	2.6	3.8
16	0	10.5	8.5	3.8	4.7
17	0	13.5	11.5	5.2	6.3
18	0	14.8	12.7	5.9	6.8
19	0	15.5	13.5	5.8	7.7
20	0	14.6	13.0	5.9	7.1
21	0	15.8	13.3	5.8	7.5
22	2.8	18.3	15.9	5.6	10.3
23	2.8	17.4	14.9	5.2	9.7
24	0	18.7	15.1	6.8	8.3
25	0	22.6	19.2	8.8	10.4

uous recirculation of bile in the hog was 600 mg. per kilogram of body weight⁽²⁴⁾. There was no evidence of conversion of cholic acid to hyodesoxycholic acid in the hog. The accumulation of hyodesoxycholic acid during the course of continuous enterohepatic circulation in the hog can be described by means of an equation⁽²⁴⁾ which has the form of the "law of compound interest"; a similar equation can be applied to the disappearance of cholic acid or the conjugated cholates after a single oral administration to the hog.

Bile After Biliary Tract Surgery

Choledochostomy drainage of bile by means of a T tube frequently is established following surgery of the biliary tract, and often such drainage is maintained for periods which range from several weeks to several months. During such drainage periods only small amounts of bile, usually quite deficient in bile salts, enter the intestine^(25b, 26). A post-operative period of 10 to 20 days usually elapses before resumption of synthesis of bile acids by patients whose biliary tracts had been severely obstructed prior to operation.

As an illustration of fairly typical results, data are presented^(25b) in tables 3 and 4 for

the case* of a 58 year old white woman on whom a cholecystectomy was performed (case 1). This patient had experienced severe attacks of epigastric pain over a period of seven years prior to operation. At operation a contracted, thickened gallbladder was found with a 1.5 cm. stone imbedded in the fundus. The common duct was filled with a large putty-like mass, greenish-brown in color, which formed a cast of the common duct. This material was removed and a large T tube was placed in the common duct. After the operation, the patient's condition was satisfactory.

All of the various bile acids were practically absent from the drainage bile of this patient during the first four or five days after operation. The excretion of desoxycholic acid and of the total dihydroxycholic acid fraction (which includes desoxycholic acid) was resumed somewhat earlier than the excretion of cholic acid. Cholic acid began to appear in the bile in measurable quantities on the ninth day.

In the case of this patient, the excretion of bile acids increased rather rapidly after the tenth day, but in other cases^(25b) the

*From the service of Dr. Charles G. Johnston, Professor of Surgery, Wayne University College of Medicine, Detroit, Michigan.

resumption of bile acid synthesis was more retarded. The quantity of total dihydroxycholic acids usually exceeded the amount of desoxycholic acid. This is evidence for the presence of one or more additional members of the dihydroxycholic acid series. Inasmuch as Wieland and others^(7,9) have isolated chenodesoxycholic acid (anthropodesoxycholic acid) from gallbladder bile collected from cadavers, it is reasonable to assume that this dihydroxycholic acid is a normal constituent of human bile, and that the difference between the values for the total dihydroxycholic acids and those for desoxycholic acid corresponds to chenodesoxycholic acid.

The biliary excretion of this patient appeared to be approaching a steady-state at the time of termination of drainage, but it is doubtful whether the bile acid concentrations could be considered "normal" even at this time. However, the *relative proportions* of the various bile acids were rather constant after the twentieth day, with the exception of the two days on which desiccated hog bile was administered to the patient. The average proportions of cholic acid to desoxycholic acid to chenodesoxycholic acid for the twentieth, twenty-first, twenty-fourth, and twenty-fifth days were 3 : 0.98 : 0.74.

Appreciable fractions of the bile acids excreted by this patient during the first ten days after operation were unconjugated, but the percentage of the total bile acids in the conjugated form rose to 85 during the latter part of the period of drainage (table 4). The average ratio of glyco-conjugated to tauro-conjugated acids was 1.3 : 1 during periods when hog bile was not administered. Following the oral administration of dried gallbladder bile of the hog to this patient, the excretion of hyodesoxycholic acid (the predominant bile acid of hog bile) in the drainage bile commenced after one to two hours. Thereafter, the excretion of this "foreign" bile acid rose to a peak at about seven to ten hours after administration, then gradually declined; the total period of excretion comprised 18 to 20 hours in some cases. The average excretion of hyodesoxycholic acid was 88 per cent of the amount administered.

Replacement therapy

In table 5 data are presented which demonstrate that hyodesoxycholic acid of hog bile can enter the enterohepatic circulation

Table 5
The Enterohepatic Circulation of Glycohyodesoxycholic Acid
(Case 1)

Glycohyodesoxycholic Acid Content of Dried Hog Bile Administered	Duration of Enterohepatic Circulation	Glycohyodesoxycholic Acid Content of Bile Excreted at End of Period of Circulation	Loss of Glycohyodesoxycholic Acid During Circulation
(millimoles)	(hours)	(millimoles)	(Per cent of initial amount)
2.6	24	1.9	27
4.75	24	2.9	39
10.0	24	6.3	37
2.6	48	1.0	61.5
4.75	48	1.4	70.5
4.75	96	0.5	89.5

of patients to whom desiccated hog bile is administered orally. Similar experiments^(25b) have shown that desiccated ox bile also can be efficiently used by patients with biliary deficiency. The oral administration of ox or hog bile to patients with choledochostomy drainage causes some stimulation of the *volume* of bile-flow, but the effect is less than that produced by comparable amounts of hydrocholeretics such as dehydrocholic acid. This smaller increase in volume probably is desirable when bile is administered preoperatively to patients with biliary obstruction. The difference between a choleric and a hydrocholeretic agent is shown in table 6, which was derived from the experiments of Berman and others⁽²⁷⁾.

Loss of Bile Acids During Enterohepatic Circulation

During each passage of bile acids through the enterohepatic circuit some percentage of the total circulating bile acids is lost. This percentage varies from 10 to 20 per cent of the total. Schmidt and others⁽¹³⁾ have investigated the fate of the bile acids which are lost during enterohepatic circulation, and they have concluded that, at least in the guinea pig, the disappearance is due to the oxidation of the bile acids to keto-bile acids in the cecum by the action of the micro-organism, *Alcaligenes faecalis*.

Mayo and Greene⁽²⁸⁾ and Reiniers⁽²⁹⁾ have concluded that, after the bile acids are absorbed from the intestine during enterohepatic circulation, the preferential route through which these acids reach the blood stream is by way of the lymphatics. The average concentration of bile acids in blood

Table 6
The Effect of Choleric and Hydrocholeric Agents on Biliary Excretion in Normal Animals

Stimulating Agent	Percentage Increase	
	Total fluids	Total solids
Ox bile salts (choleric)	36	67
Dehydrocholic acid (hydrocholeric)	106	63

of the peripheral circulation of normal animals is small (0.5 to 3 mg. per 100 ml. by various analytical methods), but in experimental animals and in patients with biliary obstruction the concentration increases many fold, and may even attain a value as high as 30 mg. per 100 ml. in peripheral blood^(17a, 24, 25b, 29, 30). In dogs the concentration of cholic acid in lymph of the thoracic duct rises rapidly following total biliary obstruction to values of 16 to 20 mg. per 100 ml. within 1 hour, and to peak values of 20 to 25 mg. per 100 ml. within four hours after onset of the obstruction⁽²⁹⁾.

The concentration of cholic acid in the peripheral blood of these experimental animals rises much more slowly (5 mg. per 100 ml. at 5 hours, and 16 mg. per 100 ml. at 13 hours after obstruction in one animal); but the concentration remains high for many days, and then begins to decline slowly after approximately 30 days of total obstruction⁽²⁹⁾. This fall in the concentration of cholic acid in peripheral blood which occurs in chronic obstruction may be due to liver damage. Such damage to hepatic tissue from prolonged biliary obstruction may account for the observation that many patients with this condition exhibit only moderate elevation of the concentration of bile acids in the peripheral circulation^(25b, 29).

Bile acid tolerance tests^(30b, 31) may prove to be useful from a diagnostic standpoint in such cases. Baker and others⁽³¹⁾ have conducted comparative studies of bile acid tolerance tests with the bromsulphthalein excretion test for liver function in experimental cases of central necrosis of the liver produced by carbon tetrachloride. In early central necrosis the bromsulphthalein excretion was definitely delayed, while cholate clearance was only slightly changed from the normal. These investigators obtained evidence for a competitive effect when cholate and bromsulphthalein were injected simultaneously; this effect consisted of a retardation in bromsulphthalein excretion under these conditions. A

similar effect was reported by Mills and Dragstedt⁽³²⁾. Although the early effect of carbon tetrachloride poisoning on the excretion of *injected* cholates is small, the effect of this compound, and of chloroform and tetrachlorethane, upon bile acid synthesis is large^(14a).

Functions of Bile Acids

The most important known functions of the bile acids are: the acceleration of the intestinal digestion of lipids through emulsification and through direct catalysis of the hydrolysis of fats by pancreatic lipase⁽³³⁾; and the promotion of the intestinal absorption of fats⁽³⁴⁾ and of the fat-soluble vitamins or provitamins: carotene^(1a, e, 35), vitamin D⁽³⁶⁾, vitamin E⁽³⁷⁾, and vitamin K^(1b, c, 38). The effect on the intestinal absorption of vitamin K is particularly important from a clinical standpoint, inasmuch as the oral administration of bile and vitamin K to patients with biliary obstruction or biliary fistulas can alleviate the bleeding tendency in such cases by promoting the restoration of plasma prothrombin concentrations to normal levels^(1b, c).

The solubility of cholesterol in aqueous solutions of bile salts⁽³⁹⁾ in contrast to the insolubility of this sterol in water alone provides an explanation for the fact that under normal conditions considerable amounts of cholesterol are excreted in bile without precipitation in the gallbladder and bile ducts. Other factors also, such as the presence of proteins in bile, may contribute to the solubility of cholesterol in this fluid. The low bile salt concentrations frequently found in bile from damaged gallbladders⁽⁴⁰⁾ have suggested the possibility that bile salt—cholesterol ratios might be correlated with the formation of cholesterol stones in the biliary tract. Ravdin and others^(26b) have pointed out that there are difficulties in attempting such correlations, but, nevertheless, they believe that low concentrations of bile salts may be an important factor in the etiology of gallstones. The physiologic and pathologic aspects of gallbladder function are beyond the scope of the present review, but much information of interest is summarized in the paper of Ravdin and colleagues^(26b).

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

APRIL, 1952

THE MACNIDER MEMORIAL ISSUE

This issue of the *North Carolina Medical Journal* is presented to its readers as a re-
minder of the life and works of William
deBerniere MacNider. The portrait was
painted in 1945 by John C. Johansen and
hangs in the medical library of the Universi-
ty of North Carolina at Chapel Hill. Dr.
George's summary of Dr. MacNider's career
was presented as a memorial to the general
University faculty on October 26, 1951. The
papers were contributed by nine of his col-
leagues of the basic science faculty of the
medical school in Chapel Hill. Each of the
contributors has attempted to present a sum-
mary of progress in the area of his particu-
lar interest.

It should be remarked that several of the
papers describe areas of research which are
in great ferment today, areas to which Dr.

MacNider contributed significantly in past
years. One wonders whether this prescience,
choosing years in advance to work on prob-
lems of the future, is not another measure
of the remarkable man who has left our
midst.

Today North Carolina appears about to
blossom as a medical center, with a higher
ratio of first-class medical schools to popu-
lation than any similar division of the re-
public. In this context we should not forget
that Dr. MacNider was its first bloom—
North Carolina's first native medical states-
man.

—John Borden Graham, M.D.

* * *

DR. WILLIAM DEBERNIERE MACNIDER*

The daily papers announced that on May
31 Dr. William deB. MacNider died in a
Durham hospital. Because he so loved life,
and got so much from life, it is hard to be-
lieve that he is no longer with us in the flesh.

Dr. MacNider began his teaching career
at the University of North Carolina while
he was still an undergraduate student. This
was quite in keeping with his character, for
all the rest of his life he continued to be both
a teacher and a student. He was almost cer-
tainly the most famous medical man that
North Carolina ever produced. His research
made him an international authority on the
kidney. The long list of his achievements in
Who's Who is evidence of the wide recogni-
tion given him at home and abroad. Although
he walked with the kings of medicine, how-
ever, he never lost the common touch. His
capacity for friendship seemed unlimited.

Dr. MacNider was graduated in 1903 from
the University medical school during its brief
life as a four year school. It is not too much
to say that the quality of the work done by
him as professor of pharmacology, as well
as his constant research, has done much to
keep alive in the University two year school
of medicine the high standards of medical
teaching and research that made possible its
expansion into a four year school. His legion
of friends rejoice that he lived to see this life-
long dream realized. Nothing better could be
wished for the full grown University of
North Carolina School of Medicine than that
it may retain Bill MacNider's enthusiasm as
teacher and as student.

*Reprinted from the North Carolina Medical Journal for
June, 1951 (volume 12, page 241).

DOCTORS IN POLITICS

An editorial in the *News and Observer* for March 14, headed "Doctors Lost," said in part:

"One interesting feature of the New Hampshire presidential primary is that it not only marked a defeat for old-time politicians, it was also a setback for organized doctors . . . doctors as a group are showing more and more disposition to take sides in every political campaign with or without a reason—or even an excuse . . . the organized doctors are reported to have 'gone down the line' for Senator Taft in the New Hampshire primary. Presumably, if they follow their national leaders they will do the same thing in other states.

"If the doctors of this country want to identify themselves with one political party and with one faction of that party, that is their business. But, they should do so openly and as politicians, not as doctors. And, as politicians they must expect to pay the same penalty as other politicians if and when they lose."

Evidently the editor did not trouble to get the facts before expressing an opinion. The executive secretary of the New Hampshire Medical Society writes that while there was a doctors' committee for Taft of about 40 members, there was no organized statewide activity. An equally large number of doctors favoring the candidacy of General Eisenhower were also associated but not as an organized committee. As a matter of fact, Dr. Robert O. Blood of Concord, favorable to General Eisenhower, was elected a delegate to the Republican National Convention and received the second highest total number of votes in the Republican primary.

"Any charge that the New Hampshire Presidential primary marked a defeat for old-time politics and a setback for organized doctors is entirely untrue. In the first place, there was no such factor as an organized doctors group and New Hampshire's men of medicine did not go down the line for Senator Taft, although it was recognized the Senator has done a great deal for organized medicine in his Senate actions aimed at defeating socialization. It can best be stated that New Hampshire doctors were during the primary and are now very much interested as individuals in political activity insofar as it is aimed at furthering the projection into office of men of integrity, ability and common sense, and many New Hampshire doctors have told me they would consider both Senator Taft and General Eisenhower to have these qualities."

" . . . I would like to reiterate that New Hampshire doctors have a high regard for both Senator Taft and General Eisenhower and there was definitely no 'down the line' effort on the part of New Hampshire's men of medicine for any candidate during the Presidential Preference Primary."

It is high time that doctors, as well as all other intelligent citizens, were getting interested in political activity aimed at electing "men of integrity, ability and common sense." No doubt many readers of this journal recall an editorial in the *Journal of the Ameri-*

can Medical Association, based in turn upon one from a Dallas paper, in which it was shown that in the 1948 election only 36 per cent of doctors and 38 per cent of lawyers voted, whereas 85 per cent of laborers and 90 per cent of government employees went to the polls.

Doctors are noted for being individualists, and it is doubtful if any profession can claim a larger proportion of independent voters. If, however, taking an active interest in "the projection into office of men of integrity, ability and common sense," regardless of their party affiliation, be treason—then make the most of it!" The hope of obtaining good government by competent men of integrity lies in a greatly increased number of independent voters and in a greatly increased interest in politics on the part of good citizens everywhere.

* * *

POSTGRADUATE OPPORTUNITIES IN NORTH CAROLINA

North Carolina doctors have long been fortunate in the opportunities afforded them for postgraduate training. More than 30 years ago the University of North Carolina pioneered in offering extension courses to doctors throughout the state. From its early days, Duke has given excellent symposiums every fall for the doctors of the state. More recently the faculty of Bowman Gray has begun to give postgraduate courses in cardiovascular diseases and in neurology and psychiatry, sponsored by the State Board of Health. Excellent programs are arranged by other medical organizations in the state: for example, the annual symposiums of the Raleigh Academy of Medicine, the Greensboro Academy of Medicine, the Watts Hospital staff, the New Hanover County Medical Society, and the Matheson and the Nalle Lectures in Charlotte. An excellent example of North Carolina postgraduate education is to be found on page 216 of this issue—the annual postgraduate course given by the Duke medical faculty, which this year will be devoted to pediatrics.

Medicine more than any other profession demands that its members remain students as long as they are in practice. North Carolina doctors have no valid excuse for not keeping up with the advances along the medical front.

Committees and Organizations

NORTH CAROLINA TUBERCULOSIS ASSOCIATION

Program of Annual Meeting
Sir Walter Hotel, Raleigh, North Carolina
April 23-24

Wednesday, April 23, 1952

9:30 A.M.—Registration

1:30 P.M.—General Session

Presiding: Roland L. Garrett, President North Carolina Tuberculosis Association

Invocation:

Welcome:

Business Meeting of the Association
The Voluntary Health Agency in the American Scheme — James G. Stone, Executive Secretary National Tuberculosis Association

2:45 P.M.—Medical Section

Presiding: E. E. Menefee, M.D., Vice President North Carolina Trudeau Society

A New Test for Viability for Tubercle Bacilli — A. M. Vandiviere and W. Harold Gentry, M.D., North Carolina Sanatorium

X-Ray Aspects of Segmental Anatomy — George J. Baylin, M.D., Duke University School of Medicine

Indications for Thoracic Surgery — J. D. Murphy, M.D., Veterans Administration Hospital, Oteen

The Results of Thoracic Surgery in Treatment of Certain Types of Pulmonary Tuberculosis — William C. Sealy, M.D., Duke University School of Medicine

2:45 P.M.—Non-Medical Section

Presiding: Mrs. J. J. Rowland, President, Lenoir County Tuberculosis Association

A Critical Evaluation of Mass Roentgen Surveys — David A. Cooper, M.D., President-elect American Trudeau Society

Case Finding in Industry and General Hospitals

Discussion Leader: Mildred T. Greene, Executive Secretary Greensboro Tuberculosis and Heart Associations

Other speakers to be announced
Plans for Tuberculosis Education, Research and Service at the University of North Carolina — Dr. Elizabeth L. Kemble, Dean, University of North Carolina School of Nursing

5:00 P.M.—Board of Directors Meeting, North Carolina Tuberculosis Association

7:00 P.M.—Dinner Meeting—Medical Section

Presiding: R. B. C. Franklin, M.D., President North Carolina Trudeau Society

Mycotic Lung Infections — David T. Smith, M.D., Duke University School of Medicine

Diabetes and Tuberculosis — David A. Cooper, M.D.

7:00 P.M.—Dinner Meeting—North Carolina Conference of Tuberculosis Secretaries

Thursday, April 24, 1952

9:30 A.M.—General Session

Presiding: E. N. Pope, President Wake County Tuberculosis Association

Trends in Public Relations — A. L. Bechfold, Director, Public Relations, Lance, Inc., Charlotte

Objectives of the Buncombe County Come Back Club — Mrs. I. G. Craig, Asheville

Symposium — Reports of Official Agencies

North Carolina Sanatoriums — H. Stuart Willis, M.D., Superintendent North Carolina Sanatoriums

North Carolina Health Department — J. W. R. Norton, M.D., State Health Officer

North Carolina Welfare Department — Dr. Ellen Winston, Commissioner North Carolina State Board of Public Welfare Tuberculosis of the Mentally Ill — Edward N. Pleasants, M.D., Superintendent State Hospital at Raleigh

12:30 P.M.—Luncheon Meeting

Presiding: Roland L. Garrett

Invocation: The Reverend Dr. T. A. Cheatham, Minister Emeritus, Pinehurst

1951 Christmas Seal Sale Report — W. C. Jackson, M.D., State Chairman

Presentation of Speaker — Mrs. Baxter Durham, Executive Secretary Wake County Tuberculosis Association

A Vision Plus a Task — Mrs. Earl Brian, Raleigh

New Scrub-Up Outdoes Soap in Clinical Trial By Army M.D.'s

A new surgical scrub technique recommended for the operating theater under combat conditions because it hastens pre-operative procedures has just been reported by a team of Army doctors. Employing a preparation known as pHisoHex, the technique reduces by 70 per cent the time required to cleanse both the surgeon's hands and the site of the operation, or wound.

"The use of this technique greatly simplifies and hastens the pre-operative procedure" and "offers continued protection during an operation," according to Major Curtis P. Artz, Col. Edwin J. Pulaski, and Col. Joseph R. Shaeffer of the Brooks Army Hospital, Ft. Sam Houston, San Antonio, Texas, who reported their findings in the U. S. Armed Forces Medical Journal.

pHisoHex is a soapless sudsing detergent fortified with a potent nonirritating antiseptic, hexachlorophene, in the past popularly called "G-11." It is produced by Winthrop-Stearns, Inc., pharmaceutical manufacturers.

Cost of scrubbing was reduced from 17 cents to 3 cents. The doctors also proved clinically that a 3-minute scrub with pHisoHex is as effective in killing germs as the 10-minute "routine scrub" with soap, water and brush, long widely used but frequently considered to be the cause of skin irritation and soap-sensitivity.

BULLETIN BOARD

DUKE MEDICAL SCHOOL POSTGRADUATE COURSE

The next Postgraduate Course of the Duke University School of Medicine will be held on June 16-19. With the exception of Dr. Ralph Victor Platou, professor of pediatrics and chairman of the Department of Pediatrics, Tulane University School of Medicine, New Orleans, Louisiana, instructors for the course will be drawn from the faculty of the Duke University School of Medicine.

Program

Monday, June 16

- 8:30 a.m. Registration
- 9:00 a.m. "Prenatal Influences"—Dr. Ralph Victor Platou, Tulane University School of Medicine, New Orleans, Louisiana
- 10:00 a.m. "Congenital Heart Disease"—Dr. Jerome S. Harris, Professor of Pediatrics
- 11:00 a.m. "Prematurity"—Dr. Angus McBryde, Associate Professor of Pediatrics
- 12:00 noon Lunch
- 2:00 p.m. Ward rounds or visits to the various clinics
- 4:00 p.m.
- 7:30 p.m. Round-Table Discussion: "Accidents in Children"—Moderator, Dr. Platou; Discussants, Dr. Barnes Woodhall, Professor of Neurosurgery, and Dr. Jay Morris Arena, Associate Professor of Pediatrics

Tuesday, June 17

- 9:00 a.m. "Birthmarks and Moles"—Dr. Platou
- 10:00 a.m. "Common Plastic Surgical Problems in Children"—Dr. Kenneth L. Pickrell, Professor of Plastic Surgery
- 11:00 a.m. "Some Dermatological Problems in Children"—Dr. J. Lamar Callaway, Professor of Dermatology and Syphilology
- 12:00 noon Lunch
- 2:00 p.m. Ward rounds or visits to the various clinics
- 4:00 p.m.
- 7:30 p.m. Round-Table Discussion: "Epilepsy"—Moderator, Dr. Platou; Discussants, Dr. Hans Lowenbach, Associate Professor of Psychiatry; Dr. Guy L. Odom, Professor of Neurosurgery; and Dr. E. Charles Kunkle, Associate Professor of Medicine in Charge of Neurology

Wednesday, June 18

- 9:00 a.m. "The Tuberculous Child"—Dr. Platou
- 10:00 a.m. "The Allergic Child"—Dr. Susan Dees, Associate Professor of Pediatrics
- 11:00 a.m. "The Problem Child"—Dr. Leslie B. Hohman, Professor of Psychiatry
- 12:00 noon Lunch
- 2:00 p.m. Ward rounds or visits to the various clinics
- 4:00 p.m.
- 7:00 p.m. Guests and faculty are invited to Turnage's for a barbecue dinner

Thursday, June 19

- 9:00 a.m. "Cancer in Children"—Dean Wilburt C. Davison, Professor of Pediatrics and Chairman of the Department of Pediatrics

- 10:00 a.m. "Congenital Disturbances of Bone Formation"—Dr. Platou
- 11:00 a.m. "Common Pediatrics Problems"—Dr. Arthur Hill London, Associate in Pediatrics
- 12:00 noon Lunch
- 2:00 p.m. Ward rounds or visits to the various clinics
- 4:00 p.m.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Dr. William deMaria, instructor in pediatrics at the Duke University Medical School, recently received a \$30,000 research grant from the John and Mary R. Markle Foundation of New York.

Dr. deMaria, one of six pediatricians awarded grants this year, became the fourth Duke pediatrician to win a five year Markle grant.

Dr. deMaria is working chiefly with heart and kidney diseases in children. The Duke Medical School will administer and supplement the grant (\$6,000 a year for five years).

Other Duke pediatricians already working under Markle grants are Dr. Ivan W. Brown, Jr., Dr. Samuel P. Martin, and Dr. George W. Schwert, Jr. The Duke doctors are among 87 researchers from 46 medical schools who have received such grants since the Markle program was started in 1948.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. Lyle Weed, from the Section on Bacteriology of the Mayo Clinic, spoke to the faculty and student body on "Pulmonary Lesions of Varied Etiology: The Importance of Cultures of Surgical Specimens" on April 19.

* * *

Dr. K. M. Brinkhous, professor of pathology, was guest speaker at the March meeting of the Moore County Medical Society in Pinehurst; his topic was "Hemorrhagic Diseases."

* * *

Dr. John B. Graham, of the Pathology Department, attended a meeting of Markle Scholars held in conjunction with the Pre-professional Conference at Buck Hill Falls, Pennsylvania, on April 6 through April 9.

* * *

"The Influence of Fluorine on Calcification" was the subject of a paper by Mr. M. K. Berkut, of the Department of Biological Chemistry, presented before the International Association for Dental Research in Colorado Springs in March.

* * *

The American Heart Association has made a grant of \$9,000 to Dr. C. Bruce Taylor, associate professor of pathology, for a study entitled "Evaluation of Macacus Rhesus Monkey as Experimental Animal for Study of Atherosclerosis (including studies on cholesterol metabolism using C₁₄ labeled acetate)."

* * *

Dr. Charles H. Burnett, professor of medicine, was guest speaker at the staff conference of the U. S. Naval Hospital at Camp Lejeune on March 11; he spoke on "The Evaluation of Thyroid Function and the Medical Treatment of Hyperthyroidism." He took part in a roundtable discussion on "Diabetes," and discussed "Renal Complications of Pregnancy," at the Third Annual Postgraduate Day Exercises of the Memorial and Crippled Children's Hospital in Roanoke the latter part of March.

* * *

Dr. Isaac M. Taylor, of the Department of Medicine, spoke to the Watts Hospital medical staff on "Metabolic Factors Affecting Electrolyte Distribution Within the Body" in March.

* * *

Dr. George D. Penick, Instructor in Pathology, presented a paper at the Symposium on Irradiation Damage at the American Association of Pathologists and Bacteriologists in New York City on April 11.

* * *

At the April meetings of the Federation of American Societies for Experimental Biology in New York, the following staff members presented papers:

Robert D. Langdell, Robert H. Wagner, and K. M. Brinkhous—"Antihemophilic Factor: its Effect on One-Stage Clotting Tests as the Basis for a Simple AHF Assay Procedure." (Department of Pathology)

K. M. Brinkhous, F. C. Morrison, Jr., and M. E. Murrer—"Comparative Study of Clotting Defects in Human, Canine and Procine Hemophilia." (Department of Pathology, University of North Carolina, and Department of Agricultural Chemistry, University of Missouri.)

Fred W. Ellis—"Observations on the Bronchodilator Activity of Visammin (Khellin)." (Department of Pharmacology)

M. K. Berkut and James C. Andrews—"Influence of Fluorides on Mechanism of Tooth Development." (Department of Biological Chemistry and Nutrition)

J. Logan Irvin and Elinor Moore Irvin—"Interaction of Quinacrine with Nucleic Acids and with their Products of Depolymerization by Alkali and by Enzymes." (Department of Biological Chemistry and Nutrition)

W. R. Straughn—"Quantitative Determination of Low Concentrations of Nitrate by Enzymatic Reduction." (Department of Bacteriology)

Jessica H. Lewis and John H. Ferguson—"Inhibition of Fibrinolysin and Trypsin." (Department of Physiology)

John H. Ferguson, G. A. Andrews, and Marshall Brucer—"Blood-clotting Studies Following Internal Radiation." (Physiology Department, University of North Carolina, and the Oak Ridge Institute of Nuclear Studies)

Edwin P. Hiatt and Inez Greene—"Distribution, Excretion and Metabolism of the Nitrate Ion Administered Intravenously as NaNO_3 ." (Department of Physiology)

BRODIE C. NALLE LECTURE†

The third Brodie C. Nalle Lecture will be presented by the Brodie C. Nalle Fund of The Nalle Clinic Foundation on Friday, April 25, 1952, at 8:00 p.m. in the ballroom of the Hotel Charlotte, Charlotte, North Carolina. The speaker for this lecture will be Dr. Richard W. TeLinde of Johns Hopkins University School of Medicine, Baltimore, Maryland. His subject will be: "Carcinoma of the Cervix: Recent Advances in Diagnosis and Treatment."

Dr. TeLinde is professor of gynecology at Johns Hopkins University School of Medicine. He has been particularly interested in his subject for many years, and is considered an authority on this disease. He is a member of the American Gynecological Society, the American Gynecological Club, Southern Surgical Society, Southern Medical Society, and the American Medical Association. He also has honorary memberships in the Peruvian Gynecological Society and the Brazilian Gynecological Society. Dr. TeLinde is also author of the textbook, "Operative Gynecology."

†Dr. Nalle died of coronary thrombosis on February 13, 1952.

NORTH CAROLINA SURGICAL ASSOCIATION

The North Carolina Surgical Association held its regular spring meeting at Sedgefield Inn on March 8. The following scientific program was presented: "Endometriosis—Its Pathological Physiology and Surgical Therapy"—Dr. William W. Noel of Henderson; "The Management of Traumatic Abdominal Injuries"—Dr. George W. Joyner of Asheboro; and "The Present Day Management of Burns with Special Reference to Early Grafting"—Dr. James F. Marshall of Winston-Salem. The one day meeting was concluded by a golf tournament and a formal dinner.

AMERICAN CANCER SOCIETY, NORTH CAROLINA DIVISION, INC.

Ready for loan to county medical societies or schools of medicine is the new medical film of the American Cancer Society and the National Cancer Institute, "Uterine Cancer: The Problem of Early Diagnosis." The film may be borrowed from State Headquarters, American Cancer Society, North Carolina Division, Haynes Building, Mt. Airy, North Carolina.

In 16 mm., with color and sound, the film may be shown in 21 minutes. The *Journal of the American Medical Association* of February 2, 1952, describes the film fully and comments: "The picture is well organized. The photography, animation, and narration are excellent, and the film is highly recommended for the general practitioner, the advanced medical student and hospital meetings."

* * *

Two North Carolina medical men attending the Second National Cancer Conference at Cincinnati on March 3, 4, and 5 were Dr. L. H. Campbell of Asheville, director of the Buncombe County Cancer Center, and Dr. Robert F. Young, health officer for Halifax County. In reporting on the sessions, in which 400 cancer specialists and researchers participated, Dr. Young commented: "All of us came away feeling that we are knocking on the door of the answer to the cause of cancer. We left with great encouragement and hope."

* * *

Looking forward to the 1952 Cancer Crusade in April, 10 district meetings for volunteer workers of the North Carolina Division, ACS, were held March 3-14. They were held in Lenoir, Asheville, High Point, Charlotte, Lumberton, Burlington, Tarboro, Clinton, Washington, and Elizabeth City. Physicians who are working in, or have worked in, the detection centers of the state were speakers at eight of the sessions.

NORTH CAROLINA ALCOHOLIC REHABILITATION PROGRAM

A wide range of topics delivered by a staff of prominent lecturers will be featured at North Carolina's pioneer Summer Studies on Facts About Alcohol in Chapel Hill June 9-13, it was announced recently by S. K. Proctor, director of the North Carolina Alcoholic Rehabilitation Program.

Sponsored jointly by the ARP and the University of North Carolina Extension Division, under the direction of Russell M. Grumman, the Summer Studies will present a teamwork approach toward the social, medical, religious, and educational problems of alcohol and the illness of alcoholism.

To supplement the varied lecture program, the Studies will feature special afternoon seminars on community problems. They will offer techniques of successful pastoral counseling, the latest methods

of unbiased instruction about alcohol, and the relation of alcoholism problems to courts, jails, and the social agency. One seminar will feature the administrative and therapeutic aspects of the ARP.

Special films to be shown and discussed include *Preface to a Life, Overdependency, Alcohol and the Human Body, and Alcoholism*. An information folder describing the fees, matriculation, curriculum and staff of the Studies is available at The ARP, Box 9118, in Raleigh.

* * *

Twenty scholarships to the 1952 Yale University Summer School of Alcohol Studies are now available to North Carolina teachers, physicians, public health and social workers, ministers, personnel workers, law enforcement officials, Salvation Army workers, Alcoholics Anonymous members, and private citizens interested in the latest facts on alcohol problems.

Sponsored by the North Carolina Alcoholic Rehabilitation Program, the special educational grants this year include tuition, room, and board, it was announced by S. K. Proctor, executive director of the ARP. Sunday meals and travel expenses are not included.

Applications for the special scholarships must be submitted by letter to the Raleigh office of the ARP by April 25, and should include a statement of professional background and any particular interest in newly discovered facts and problems relative to alcohol and the illness of alcoholism.

All requests for further information on the scholarships and for the Yale School pamphlet should be addressed to S. K. Proctor, Box 9118, Raleigh, N. C.

EDGECOMBE-NASH MEDICAL SOCIETY

The regular monthly meeting of the Edgecombe-Nash Medical Society was held on March 12 at the New Ricks Hotel. Speaker of the evening was Dr. George C. Ham, professor of psychiatry of the University of North Carolina School of Medicine. The Society welcomed into its membership Dr. Harold B. Spangler, who recently opened an office in Rocky Mount for the practice of pediatrics.

HALIFAX COUNTY MEDICAL SOCIETY

"What the General Practitioner Should Know About Glaucoma" was the topic of a discussion by Dr. Luther C. Brawner of Richmond, Virginia, at the regular monthly dinner meeting of the Halifax County Medical Society in Roanoke Rapids on March 14.

NEWS NOTES

The North Carolina Cancer Institute and the North Carolina Division of the American Cancer Society were hosts at the official opening of the Institute (a nursing home providing terminal care for needy cancer patients) at Lumberton on Sunday, March 23.

* * *

Dr. Thomas R. Huffines and Dr. George G. Gilbert have announced the association of Dr. Ralph G. Eaker in the practice of urology in Asheville.

* * *

Dr. Charles M. Kendrick and Dr. Frederick A. Thompson, Jr., of Lenoir, have opened their office as partners in the practice of internal medicine.

* * *

Dr. John S. Rhodes and Dr. Tom B. Daniel have announced the removal of their offices to 700 West Morgan Street in Raleigh.

GENERAL PRACTICE POSTGRADUATE TRAINING

The General Practice Group of the University of Tennessee has established a postgraduate clinical training program for general practitioners. This has been approved by the American Academy of General Practice for its members.

The program is designed for the general practitioner on an individual basis, according to his individual needs. One week to one month of training is offered.

Each doctor will spend morning hours in his choice of any one of the University specialty fields. This will be active work at the resident level. The afternoons will be spent in the General Practice Clinic, where the medical students get active general practice experience. Evenings are utilized in the emergency room of the John Gaston Hospital, which is supervised by members of the General Practice Staff.

General practitioners who would like to participate or who desire further information, may write to the General Practice Office, University of Tennessee, Memphis, Tennessee. There is no fee charged for this training.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

A request for "cooperation" on the part of the American Medical Association in making various health and medical care statistics available to the President's Commission on the Health Needs of the Nation was approved by the board of trustees.

Dr. George F. Lull, secretary and general manager, officially replied to the Commission, saying: "It has long been the policy of the American Medical Association to permit all survey and study groups to have access to the medical data in its possession. The Board's action, however, should not be construed as implying approval of the Commission or its projected program which we believe to be of political intent."

* * *

Dr. Gunnar Gundersen of Wisconsin, a member of the A.M.A. Board of Trustees, recently was elected chairman of the Joint Commission on Accreditation of Hospitals. The Commission recently selected Edwin L. Crosby, M.D., as director.

* * *

More than 500 medical and farm leaders gathering in Denver for the Seventh Annual Conference on Rural Health made news. The Conference's theme—how to help rural communities help themselves to better health—was carried not only in many newspapers and magazines but also to a large radio audience in the Denver area and throughout the midwest.

* * *

A \$39,650 budget to wind up activities of the Committee for the Survey of Medical Education has been approved by the A.M.A. Board of Trustees. The Committee reports that Survey findings should be completed and sent to the publisher by June, 1952.

A representative sample of 41 medical schools was studied with the idea of pointing up the basic problems facing medical education today. Broad objectives of the Survey are: (1) to improve medical education to meet over-all health needs of the public; (2) evaluate the degree to which medical schools are meeting the need for physicians; (3) promote the advancement of medical science; and (4) inform the public of the nature, content and purposes of medical education.

* * *

The A.M.A. plans to centralize its medical socio-economic files in the near future. At its last meeting, the Board of Trustees authorized the appointment of an assistant librarian to assemble and catalogue this material from the various councils, committees, and bureaus of the Association. Eventually a complete history of A.M.A. policies and attitudes will be compiled from this source.

* * *

The A.M.A. Board of Trustees recently appointed a liaison committee of Doctors Elmer Henderson, chairman, Perrin H. Long, George F. Lull, Henry B. Mulholland, Harvey B. Stone, and Walter B. Martin, to confer with the American Legion on matters dealing with national health and medical care problems. On March 1, this group met with the American Legion's Committee on Rehabilitation in Washington, D. C. The committee will meet again in April with Legion representatives.

* * *

The A.M.A. has pledged continued financial support to the Commission on Chronic Illness in the amount of \$80,000 to be paid over a four-year period. The Commission, an independent national agency, is conducting an intensive study of chronic illness—one of the most important health problems in America today. This year's installment of \$20,000 was recently turned over to the Commission. A \$300,000 budget set by the Commission for the coming four-year period has been met by twelve contributing organizations.

* * *

A new series of health education radio programs, called "Medicine, U.S.A.," are being carried over the National Broadcasting Company network on six successive Saturdays—the first on March 29. Sponsored by the American Medical Association and county medical societies in cooperation with NBC, the shows are broadcast from New York at 7:30 p.m., EST. Charles Laughton, noted English character actor, narrates the series.

Subjects include: March 29—"Alcoholism;" April 5—"Psychiatry;" April 12—"Longer Life;" April 19—"Contagious Diseases;" April 26—"Exercise and Athletics;" and May 3—"Medicine's Progress."

JOHN AND MARY R. MARKLE FOUNDATION

Markle Fund Grants for Medical School Scientists

Twenty-one young scientists, all medical school faculty members, have been named as the fifth group of Scholars in Medical Science by the John and Mary R. Markle Foundation. This is the largest number appointed for any year since the program began in 1948. John M. Russell, executive director of the fund, announced. With total appropriations of over \$2,500,000 for this program, the Foundation is now making grants toward the support of 87 doctors in 49 medical schools.

The purpose of the program is to help relieve the shortage of medical school teachers and investigators by providing academic security and financial assistance for young faculty members early in their careers. All grants are made direct to the medical schools at the rate of \$6,000 annually for five years, and are earmarked for support of a specific scholar and his research.

Among the scholars whose appointments begin in 1952 is Dr. William J. A. DeMaria, instructor in pediatrics, Duke University School of Medicine.

LIFE INSURANCE MEDICAL RESEARCH FUND

Life insurance companies of the United States and Canada will give more than \$780,000 this year for research in heart disease, it was announced recently by M. Albert Linton, chairman of the Board of the Life Insurance Medical Research Fund.

The grants being made to medical schools and to individual scientists for heart disease research this year bring to \$4,700,000 the total amount of money given by the life insurance business since the Life Insurance Medical Research Fund was organized late in 1945. The Fund is supported by the annual contributions of 141 United States and Canadian companies.

Included in the grants are two to Duke University: \$14,580 for research by Dr. Philip Handler on humoral relationships in hypertension; and \$22,140 for research by Dr. E. A. Stead, Jr., on cardiovascular and respiratory physiology, and organ metabolism.

(BULLETIN BOARD CONTINUED ON PAGE 220)

Classified Advertisements

THE MOUNT SINAI HOSPITAL of Greater Miami

Announces its Second Annual Seminar on RECENT ADVANCES IN DIAGNOSIS AND TREATMENT

May 22, 23, 24, 1952

Lecturers and Subjects:

- Dr. D. M. Bergenstal, University of Chicago, Surgery of the Adrenal.
- Dr. Wm. Dameshek, Tufts Medical College, Advances in Hematology.
- Dr. D. C. Darrow, Yale University, Electrolyte Disturbances.
- Dr. R. Elman, Washington University, Recent Advances in Surgery.
- Dr. J. W. Hinton, New York University, Advances in Gastric Surgery.
- Dr. J. B. Kirsner, University of Chicago, Gastrointestinal Diseases.
- Dr. R. Levine, Michael Reese Hospital, Adreno-Cortical Steroids; also Recent Advances in Diabetes.
- Dr. J. H. Means, Harvard University, Advances in Thyroidology and Clinical Applications.

Session to be held at the Delano Hotel, Miami Beach Florida.

Panel Discussion will follow each Session.

Registration Fee \$20.00 (Cocktail Party, Banquet \$7.50 optional.)

Address:

Chairman, Seminar Committee
Mount Sinai Hospital of Greater Miami
Miami Beach, Florida

Registration Limited to 200

General surgeon, native of North Carolina, would like location in town of 10,000 or more after July 1st. Four years of fully approved training in 850-bed hospital, with experience in thoracic surgery and oncology. Board eligible. Aged 31, married, 2 children. Interested persons write MS-O-1, P.O. Box 790, Raleigh, North Carolina.

BULLETIN BOARD

(CONTINUED FROM PAGE 219)

MICHAEL REECE HOSPITAL POSTGRADUATE SCHOOL

The Michael Reese Hospital Postgraduate School is offering five postgraduate courses during April and May. The first course—"Surgery—Indications, Pre- and Post-Operative Care"—was held from April 14 to 18. Other courses will be given as follows: "Clinical Dermatology—Refresher Course in Diseases of the Skin for General Practitioners," April 21 to 25; "Diseases of the Endocrines—Physiology and Diagnostic Methods," April 28 to May 9; "Recent Advances in Internal Medicine," May 12 to 24; "Recent Advances in Pediatrics—Diagnostic and Therapeutic Measures," May 26 to 31. For further information on any of these courses, address: Dr. Samuel Soskin, Dean, 29th Street and Ellis Avenue, Chicago 16, Illinois.

UNIVERSITY OF MICHIGAN FIFTH ANNUAL CONFERENCE ON AGING

"Housing the Aging" is the topic for the University of Michigan Fifth Annual Conference on Aging to be held in Ann Arbor, Michigan, July 24-26, 1952. The three-day conference will consider the housing needs of healthy, chronically ill, confused, and disabled older people living in urban and rural areas. Among the topics to be discussed are types of housing and living arrangements; architectural designs and costs; hygiene and safety standards; social and economic aspects of housing; and auxiliary services. The conference is designed to serve as a forum for interchanging information and for getting action on the difficult problem of financing housing for the aging.

The conference is under the co-sponsorship of the Institute for Human Adjustment, Schools of Architecture, Business Administration, Social Work, Public Health, and the Medical School, Extension Service and Summer Session of the University of Michigan; the Michigan State Medical Society; the Committee on Aging and Geriatrics of the Federal Security Agency, Washington, D. C., and the Housing and Home Finance Agency, Washington, D. C.

Conference registration materials may be obtained by writing to Dr. Wilma Donahue, Institute for Human Adjustment, Room 1510, Rackham Building, Ann Arbor, Michigan.

COMMITTEE ON MEDICAL MOTION PICTURES

The Committee on Medical Motion Pictures of the American Medical Association has completed the 1951 supplement to the second revised edition of the booklet entitled *Reviews of Medical Motion Pictures*. This supplement contains 90 reviews of medical and health films reviewed in *The Journal of the American Medical Association* from January 1, 1951, through December 31, 1951. Each film has been indexed according to subject matter. The purpose of these reviews is to provide a brief description and an evaluation of motion pictures which are available to the medical profession.

Copies have been sent to the secretary of each of the state medical societies. Complimentary copies will be sent to county medical societies and other medical organizations upon request, from:

Committee on Medical Motion Pictures
American Medical Association
535 North Dearborn St.
Chicago, Illinois

SOCIETY FOR THE PREVENTION OF ASPHYXIAL DEATH

The Society for the Prevention of Asphyxial Death has announced the beginning of its sixth year of sponsorship of courses in resuscitation. March 7-8, 1952, it conducted its sixty-third class at its headquarters in the Academy of Sciences Building, 2 East 63 St., New York City. The April class met April 4-5. The May class will meet May 4-5, and the June class on the 6 and 7.

Instruction stresses the elimination of the death zone of the respiratory tract through lectures, demonstrations, and clinical practice in laryngoscopy and intubation of dogs and cadaver.

It is recognized that this effort, viewed from the over-all field of medical education, is but a pilot project, nevertheless it is believed that it has helped to fill the gap in essential information which medical and dental students presently face. It is hoped that the medical and dental schools over the country will shortly provide this integrated information, making it a commonplace in graduate instruction.

While the course is given regularly in New York City, the first Friday and Saturday of each month, out of town classes have met in Boston, Massachusetts; Columbus, Ohio; Washington, D. C.; Los Angeles, California, and in Honolulu. Requests for out of town courses will be considered where application is made by a group of at least 12 students. For information please write, Secretary, S.P.A.D. 2 East 63 Street, New York 21, New York.

COMMON COLD FOUNDATION

The Common Cold Foundation sponsored a conference on the common cold on February 13 in Chicago, Illinois. This is probably the first common cold conference ever held in which men of industry, science, and medicine discussed this complex disease. Dr. Thomas G. Ward, associate professor of bacteriology at Johns Hopkins University, was guest speaker at the conference, and his talk was followed by a panel discussion. More than 55 important industries in the Chicago area were represented by their medical directors, personnel, industrial and public relations officers, and industrial nurses.

The Common Cold Foundation is a non-profit, free enterprise, and is incorporated under the laws of the State of Illinois. Its purpose is to create and disburse funds for use in developing research and investigation to the end that the common cold and its complications may be more adequately controlled, minimized, or eliminated from our national life.

WORLD MEDICAL ASSOCIATION

United States Committee, Inc.

The sixth general assembly of The World Medical Association will be held in Athens, Greece, October 12 to 16, 1952, and will be followed on October 17 by a meeting of the Medical Editors of the World.

About 25 members of the United States Committee attended the fifth general assembly in Stockholm, Sweden, last year. The World Medical Association hopes that many will be able to attend the sixth general assembly. While voting members of the assembly are restricted to two from each national member association, members of the United States Committee are entitled to attend as observers, and credential cards as such will be issued by this office if desired. Address World Medical Association, United States Committee, Inc., 2 East 103rd Street, New York 29, New York.

NORTH CAROLINA MEDICAL JOURNAL

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PRESIDENT'S ADDRESS

FREDERIC C. HUBBARD, M.D.

NORTH WILKESBORO

The Medical Society of the State of North Carolina was organized in Raleigh in December, 1799—153 years ago. The society has functioned interruptedly since 1849. During this time it has served well, through its business and scientific activities, the interests of the individual physician, the health agencies, and the people of North Carolina generally. It has been a potent factor in the promotion of better medical education, better medical and health services, and improved health conditions in our state. It has kept pace with business interests, state agencies, and other professions in the building of a firm foundation for this great commonwealth. Its aim has always been the achievement, through the work of its committees, of higher planes of living through more adequate and better health programs.

Medical Advances and Goals

The latter part of the nineteenth century and the first quarter of the present century, known as the Golden Age in medicine, brought revolutionary changes in the practice of medicine and a transformation in hospitals. We witnessed during this period the discovery of the causes of most of the contagious and infectious diseases and their prevention and cure. The status of hospitals changed from that of pest houses to havens of refuge for the crippled and ailing people of the world. This was due largely, of course, to the discovery of the microbic origin of disease and the development of aseptic and antiseptic surgical technique, sanitation, education, and the like. During this period more progress was made in the field of medicine than in a thousand years previously.

During the same period the field of public

health was opened up. The developments and progress in this branch of medicine have been phenomenal. The North Carolina Department of Public Health had its humble beginning in 1877. Leaders in the medical society organized the department and succeeded in obtaining from the Legislature an appropriation of the stupendous sum of \$100 with which to operate it for the first year. Today the Department of Public Health spends millions each year in the interest of better health in our state. Furthermore, the North Carolina Department of Public Health is recognized as one of the most thoroughly organized and progressive health departments in the United States. The cooperation between the Medical Society of North Carolina and the Department of Public Health is just about perfect.

As a result of these and many other significant developments during the past few years, the concept of medical practice has changed from treatment to the prevention of disease. Kate Douglas Wiggin aptly remarked, "To treat was the voice of yesterday; to prevent is the divine whisper of today."

We can look now, I think, rather confidently ahead to further advances in the art and science of medicine to what Dr. Jonathan Forman calls "Creative Medicine." Through further scientific research and proper nutrition for the young, through education, and through a knowledge of the proper use of soil, water, and other natural resources, it may be possible to increase the resistance to disease and improve the general health of the individual to such an extent that he will avoid the chronic degenerative diseases of the aged and live happily and efficiently to a ripe old age. This idea, it seems to me, deserves the thoughtful consideration of medical men and of the citizens at large.

It is clear to all of us that there is still room for improvement in the field of medical and health services, particularly in the realms of prevention and rehabilitation. Chronic illnesses and disability are largely unsolved problems with regard to prevention, hospital care, and rehabilitation. The solution of these problems will come, no doubt, through research and education, as did the control of the acute infectious and contagious diseases.

Through great sacrifice, even of life itself in some instances, the unquenchable and undeniable scientific urge, the intense desire to serve on the part of a galaxy of great men of medicine and allied professions, and through organized and cooperative effort, medicine has reached a high plane of development in our country. We have today the greatest medical system ever to exist in the world. We have the lowest death rate and the healthiest people of any large nation. The life span of our people has increased almost 20 years since the turn of the century. We have had the assistance, of course, of allied professions, institutions, and other organizations in attaining our present position.

All of this has been made possible under a free system of medicine, in a free country, in which men recognize the dignity of the human body and the sanctity of the soul, and have control over their own destinies. Furthermore, men can work unhampered by political control. All of this proves the necessity of a cooperative and coordinated spirit in the true democratic tradition.

The North Carolina Medical Care Program

Great emphasis was given the program for medical care and health in North Carolina in 1943 by leaders of the medical profession who, armed with the draft rejection statistics and the high maternal and infant mortality rate, were inspired by a burning desire to improve the conditions of health in North Carolina. The fact that the number of hospital beds per thousand population was extremely low in North Carolina was also a matter of grave concern. These men, after due consideration and thought, developed a positive program which resulted in the appointment of the Poe Commission and finally, through legislative action, the appointment of the Medical Care Commission.

As a result of the united efforts of the North Carolina Medical Society, the Governor, the health agencies of the state, and the North Carolina Good Health Association, legislation was passed and generous appropriations made by the state to be used along with local funds and federal appropriations under the Hill-Burton Hospital Construction Act, for the erection of general hospitals and public health facilities over the state, particularly in the more rural communities. The state plan which was developed by the Medical Care Commission, as you know, also provided loans to medical, dental and nursing students, the promotion of prepaid insurance coverage to people, the four-year medical school at the University of North Carolina, and certain other important provisions. The results of this implementation of the health program in North Carolina are immeasurable.

The tangible results of the good health movement are well known to you and are everywhere in evidence in North Carolina. We have new hospital buildings, community clinics, new health department buildings, a new four-year medical school in addition to the two fine medical schools already operating in our state, a spastic hospital, more tuberculosis sanatorium beds, the organization of mental health societies and clinics, a cancer control department in the State Board of Health, cancer detection and diagnostic centers, a home for incurable cancer patients, organization of an alcoholic program and a home for alcoholics, an expanded school of public health, organization of a State Health Council, organization of rural health councils, and an active school health program. There is evidence of greater health consciousness in our state than ever before.

The role of the State Society

Your State Medical Society has given strong support to every item in the programs mentioned above. Most of the 48 committees of the society are active, and many of them have very positive programs of great importance to organized medicine. I wish that I could dwell at length on the programs and the work of the different committees, but time will not permit it. Suffice it to say that the cooperation has been one hundred per cent, and that whatever progress has been made has been due entirely to the teamwork of the Executive Committee and the other committees which have shown sus-



FREDERIC C. HUBBARD, M.D.

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tained and unusual devotion to their programs. This, along with the very efficient work of our executive secretary and his absolute loyalty to the profession, has made possible the solution of many of the difficult problems arising during the year—and there have been many.

Worthy of special mention, I am sure, is the work of the committee on the prepaid medical insurance plan. This committee has labored long and hard for over four years in an attempt to work out a satisfactory Blue Shield-Blue Cross program for the lower income groups of our state. They have sacrificed a great deal in time and means to do a good job. As a result of their cooperative effort, a highly satisfactory plan has been worked out, as you know, and is now being placed on the market. It is felt that this is one of the society's greatest contributions in the fight against socialized medicine and in the support of the many new hospitals in the state. I believe that the Blue Shield-Blue Cross program in our state deserves the support of every member of the medical profession.

The Doctor's Responsibility as a Citizen

I should like now to direct your attention briefly to the matter of medical leadership or, if you please, the doctor-citizen. I am sure that we are thoroughly aware of the fact that the profession's public relations are not what they should be. I believe that it would be well to think of it on an individual basis and at the community level. What can the physician do to solve his public relations problems, increase his usefulness, and assume his rightful place of leadership in his community? Let us measure his responsibilities to his community against the background of his educational attainments and opportunities for rendering service.

First, let me say that in my humble opinion no doctor should restrict his responsibilities and interests in the community to the practice of medicine alone. If he hides behind the cloak of professional duties, he cannot possibly fulfill completely his mission to his people. Furthermore, he will miss the real thrill of living and his full measure of usefulness in direct proportion to the extent to which he lacks interest in the social and civic affairs of the community.

The doctor, by virtue of his educational qualifications, professional work, and the prestige which he brings with him into the

community, is equipped perfectly for leadership. Furthermore, he has a definite responsibility in giving this leadership insofar as possible. He should be sufficiently broad-minded, honest, and philosophical to realize that it may be necessary to retrace steps at times, and under certain conditions, to pick up fundamentals that have been lost along the way. It might be well for him to temper the urge for scientific knowledge and try to recapture some of the old pioneer spirit of courage, wisdom, initiative, and humanism. Certain it seems to me that the fundamentals of good citizenship should transcend everything else in one's life. When this position is attained in the physician's life, he will have no public relations problems. They cease automatically to exist.

In this connection it seems to me that the young physician has a great opportunity to find and develop a proper mixture of the scientific spirit and humanism in his work. I am thinking of humanism of the type that was developed to such an admirable degree in the doctor of yesteryear, who was considered so close to his people that his services were relied upon, not only in a professional way, but as an adviser in all matters, however personal, to his patients in his community. It is well for all of us to remember that "What a man does for himself dies with him; what he does for others lives on." It is entirely possible to live so selflessly as to forget oneself into immortality.

I should like to suggest also that while leadership must be developed largely on an individual basis, it is well to remember that under present day living conditions the development of the cooperative spirit is essential. The advantages of cooperation and coordinated effort are being recognized and effected more and more between organized medicine, the health agencies, and allied groups. This is true among all professions. In the February, 1952, meeting of the Professional Engineers of North Carolina, the points at which the several professions are tangent and striving for the same goals were stressed. Special emphasis was placed on services to the public and the fight against socialism in our country. The advantages of cooperation and coordinated effort among the various professions of our state were to the forefront in all discussions. In this we have cause for real satisfaction. Furthermore, we can be assured that "in unity there

is strength" and "in multiplicity of counsel there is safety."

The Legacy of the Past

The medical profession is proud of its heritage. We point with pride to the many important roles that have been played by members of the profession in the development and maintenance of higher standards of medical and health services in our country. They have performed a great service in promoting the general welfare and in helping to lift the standards of living in the United States. We are proud of the fact that other countries are looking more and more this way for postgraduate education and training in the specialties.

As citizens we are proud of the heritage of a great land with almost unlimited natural resources, where individual freedom reigns, where every man is a king, and where his rights are protected under the law. We are not unmindful of the cost and the sacrifices that have been made on many battlefields and by way of parliamentary struggles that we might enjoy this high privilege.

The Challenge of the Present

The price we have paid in establishing and maintaining this great republic, however, is nothing in comparison to the suffering we might impose on future generations as a result of carelessness, inactivity, and stupidity at this time. Our freedom is at stake now, and there is real danger of our letting it slip away. It is still within our power to save it. We must stop those people who would squander our God-given liberties before it is too late. To this ideal the medical forces of North Carolina and the nation have dedicated themselves. Sober-minded Americans, such as are assembled here tonight, are not willing to forfeit their freedom for the dictated security in a welfare state.

The winds of dissension are blowing fiercely over the world. The war clouds hover closer and closer. Man's mind is in a state of turmoil and stress, and his attention is focused on matters of grave national and international importance. His every thought and effort is directed to the winning of the cold war. In the dark shadows which surround him lurks a more dangerous foe in the form of governmental forces, the aims of which are to take away his liberties under the guise of national emergency measures and the promise of something for nothing.

These liberties that we prize so highly and have paid for so dearly may be taken away piecemeal, wrapped in seemingly worthy governmental health legislation, subtly disguised, but eventually adding up to socialism and all that the term implies.

The medical profession is aware of increased demand by the public for better preventive medicine and public health procedures. People generally appreciate, as never before, the economic waste following neglect of disease and proper nutrition. So strong has been the emotional reaction to this that faulty legislation, such as the Murray-Wagner-Dingell Bill has been proposed, which, if put into force, would disrupt the health program and medical system of the nation.

It is important, therefore, that organized medicine recognize that in the background of this increased demand on the part of the public for more medical and health services are strong economic and social elements. The temptation to accept handouts from a paternalistic government has added to the excitement and emotional tension, and accounts more or less for the condition of strained public relations of the medical profession. The public has been blinded, of course, to the cost of a system of government-controlled medicine and to the defects of such a system. My feeling is that the medical profession should continue to give proper direction with positive programs to such demands on the part of a restless public.

Medicine's Role in the Fight for Freedom

It is significant that foremost among the free enterprises of the nation to be threatened with socialism was that of medicine. It is significant, also that government control of medicine has been the keystone in the structure of a socialistic state in every country in which socialism and communism exist. The necessity for this was stressed by both Bismarck and Lenin. The forces of organized medicine in our country were cognizant of this fact and were quick to realize that in compulsory health insurance the threat of socialism was very real; furthermore, that the nation was threatened with socialism.

The medical profession became aroused, accepted the challenge, and won the first round in what I consider one of the greatest political battles our country has ever known. The victory gained was one of major significance. The majority of the profession

had no idea of sacrificing the greatest medical system ever developed, on the altar of socialism. We knew that to have compulsory health insurance thrust upon us would mean the eventual disruption of free enterprise generally—the basis upon which this country grew great.

The response on the part of hundreds of organizations in the nation to the alarm which was sounded by the American Medical Association was immediate and wholehearted. Among the groups which leapt to the defense of the medical profession in its fight were the small town newspapers and the farm groups over our country. They gave sustained and unlimited support in a most democratic way. This proved beyond a doubt that in the hearts of our rural people the flame of freedom still burns bright. These people, particularly the farm groups, live close to nature and know the real value of our natural resources and their effect upon health. They cherish the spirit of freedom to the greatest degree. It is my opinion that in the hearts of the members of our profession and the farm people reside the greatest single bulwark against socialism in our country.

Conclusion

Let us remember that the medical welfare of the people of North Carolina is our responsibility and that in rendering the best possible professional service to them we should take into consideration also their social and economic interests. I have been impressed during the past year during attendance at meetings of the various medical groups over the state, with the high type of scientific programs and the real and genuine interest on the part of the doctors in serving the best health interests of our state. I feel sure that the people of North Carolina can depend upon the medical profession to give the same full measure of devotion to this cause in the future as in the past.

Finally, let us not forget that the fight against governmental control of medicine and the socialization of our country is not over. As intelligent citizens we should study the candidates and their platforms and go to the polls and vote for those men who we feel sure will represent the best interests of our republic. I am convinced that the concept of freedom is deeply engraved in the

souls of men and will never die. Nevertheless, in the words of Jefferson, "Eternal vigilance is the price of liberty." We must continue to fight for its preservation.

NEPHRECTOMY

Comments on a Series of 270 Operations

WILLIAM M. COPPRIDGE, M.D.

LOUIS ROBERTS, M.D.

and

JACK HUGHES, M.D.*

DURHAM

Nephrectomy involves the removal of the entire kidney: an organ composed of vital tissue, the function of which is necessary to the life of the individual. It is, therefore, almost unique among surgical procedures in that there exists no organic or synthetic substitute that can carry on the function of the organ that has been removed. Since the ultimate role of the urologist is to preserve the capacity of renal tissue, considerable thought and investigation enters into the decision to sacrifice the kidney. Fortunately, in most cases the function of the organ is so impaired that little total function is lost when the diseased kidney is removed. In general, the operation is performed only for unilateral renal disease. Those conditions that commonly necessitate nephrectomy are few in number. Early recognition of disease in the kidney may often lead to successful, less radical treatment. It is with this thought in mind that we are prompted to report an analysis of this series of operations and comment briefly upon the pathology that, in our judgment, necessitated nephrectomy.

Classification of Cases

Of the 270 patients, 249 were white and 21 were Negro. The average age at the time of operation was 42. It is estimated that during the period covered by these consecutive cases, approximately 18,500 urologic patients were seen in our offices and at Watts and Lincoln hospitals. While it is probably true that in some of the patients this operation was indicated, advised, and refused by the patient, nevertheless the percentage of patients in whom nephrectomy was advised

*From the Departments of Urology, Watts and Lincoln Hospitals, Durham, North Carolina.

was likely not over 1.5 per cent. It is therefore not a common procedure even in urologic practice.

We are not able to give an accurate summary showing the relative incidence of nephrectomy in Negro and white patients. Taking into consideration the fact that we see many more white patients, there still exists a predominance of nephrectomies in the white race. This may be explained in several ways. The Negro, in our experience and confirmed by others, is much less susceptible to stone. This coupled with the fact that the race also exhibits considerable relative resistance to pyogenic infection may account for the lower rate of renal pathology requiring nephrectomy.

In most of the cases, more than one pathologic process was found in the kidney. Congenital malformations of extremely varying degrees were common, and sometimes the advanced pathology made their recognition difficult or even questionable. The complex embryologic development of the urinary tract frequently results in malformations of the kidney and ureter. Such deformities predispose the kidney to various pathologic processes. In this series we estimate that at least 50 per cent of the cases were involved in some type of malformation on the affected side.

The following classification of existing pathologic conditions is intended to portray the predominant process, and no attempt is made to show the role of congenital malformation.

Stone	144
Hydronephrosis	52
Infection	22
Tumor	29
Tuberculosis	14
Trauma	4
Hematuria	5
Total	270

Indications for Nephrectomy

Calculus disease

It has long been recognized that calculus disease is of first importance as an indication for nephrectomy. The 144 cases in this series constitutes 57 per cent of the total—more than all other causes combined. Urinary stone is common in our section. Central North Carolina is one of the important “stone areas” of this country, so it is likely that our percentage of nephrectomies for stone is somewhat higher than that of other sections. Since the etiology of renal calculus

is not known, little can be done to prevent it. Early recognition and treatment can often prevent pathologic processes that may eventually result in renal dissolution.

Sooner or later, infection develops in all cases of urinary stone, and the infection, plus the stasis incident to the obstruction produced by the stone, results in destruction of the kidney. Urea-splitting organisms that produce strongly alkaline urine cause stones to grow rapidly, and unfortunately these bacteria are, on the whole, resistant to antibiotic treatment. Their presence is the chief cause of recurrence of stone after operative removal.

Ureteral calculi, remaining for long periods, are frequent causes of hydronephrosis and infection necessitating nephrectomy. Prompt treatment of these cases of “kidney colic” with measures designed to remove the stone and the accompanying infection may materially reduce the incidence of nephrectomy.

The kidney shows a remarkable tendency to improve in function after the cause of obstruction has been removed. In the absence of infection many apparently doomed organs may, after a few months, return almost to normal. The decision as to whether to remove the stone or the kidney is not always easy. Functional tests and careful bacteriologic studies are necessary. One is more inclined to remove a kidney with stone if infected by urea-splitting bacteria, all other factors being equal. Retrograde catheterization of the ureters is necessary in these cases. When this is done, accurate functional studies can be carried out and culture specimens secured from each kidney.

Intravenous urography cannot be relied upon to give an accurate index of kidney function. Von Lichtenberg, who introduced Uroselectan in this country, warned against its use for this purpose. A small ureteral stone blocking a normal kidney may cause a temporary cessation of function. We have seen many diagnoses of “non-functioning kidneys” made on the basis of intravenous studies. Confusion and even disaster may follow the use of this procedure purely as a functional test.

Conservatism is always advisable in dealing with kidney or ureteral stones; these cases are seldom emergencies. About 70 to 80 per cent of ureteral stones can be removed by manipulation through the cystoscope, and

many kidneys that formerly would have been sacrificed are now saved by pyelolithotomy or nephrolithotomy. Advances in chemotherapy have aided materially in conservative renal surgery. Many of our patients have been kept under observation for months and even years while the decision for or against nephrectomy was being made. Renal calculus, the chief offender in the production of kidney disease and ranking first as a cause for nephrectomy, deserves our profound consideration.

Hydronephrosis

Hydronephrosis ranked second in our series as a cause for removal of the kidney. This term means dilatation of the pelvis of the kidney and resulting pathologic process within the organ produced by obstruction in the urinary tract below the level of the kidney pelvis. Obstructive lesions of the lower urinary tract, of long duration, commonly produce bilateral ureteral and pelvic dilatation. Nephrectomy is rarely performed in such cases. In this group we have included only those hydronephroses resulting from causes other than stone or tumor. This leaves for discussion, largely, those cases of ureteropelvic obstruction caused by anomalous renal vessels or bands, and the less common group of pelvic obstruction caused by ptosis of the kidney.

The decision for or against nephrectomy in such cases again revolves around the degree of renal damage and the presence or absence of infection. Many conservative measures may be practiced if sufficient renal function remains and infection is not a potent factor. Plastic procedures on the pelvis and upper ureter are often successful. Ptosis of the kidney with angulation of the ureter may commonly be corrected by fixation of the kidney after careful freeing of the ureter at its junction with the pelvis. We encountered 52 cases of advanced hydronephrosis that we felt were not suitable for conservative methods and in which nephrectomy was performed.

In the group of obstructions caused by anomalous vessels or bands, many of the patients were comparatively young and had experienced no symptoms until early adult life. Most of them complained of recent attacks of flank pain with negative urinary findings. Upon examination, a large dilated kidney and pelvis, with only a trace of renal function, were found. Since the obstruction

had been constant and long-standing, few symptoms had resulted. Infection was rare before investigation; but once the case was examined urologically with ureteral catheterization, infection set in promptly and nephrectomy, which was already indicated, had to be performed without delay. This type of congenital lesion is frequently bilateral, though both kidneys are seldom affected to the same degree. When bilateral involvement is present to any considerable extent, conservative surgery should be employed.

Tumors

Tumors of the kidney, its pelvis, or ureter resulted in 29 nephrectomies. The successful treatment of cancer of the upper urinary tract, as of most other cancers, depends upon early recognition and prompt surgical removal. Hematuria, that life-saving symptom of early urinary cancer, was evident in all of our cases. Here, again, in a number of the patients other renal disorders, such as stones, congenital obstruction, and infection, were present. Whenever a diagnosis of tumor was made or strongly suspected, in the absence of demonstrable metastasis, nephrectomy was performed. During the period covered by this series, it is regrettable to state that fully as many cases of renal tumor were encountered in which, after examination or exploration, nephrectomy was rejected because of metastasis. It is not to our credit as a profession that so many such patients were seen, many of whom had experienced painless hematuria one to two years before.

Infections

We have included "infection" as a cause for nephrectomy in 22 cases. These cases were those in which infection was the principal pathologic feature—those in which stone, demonstrable obstruction, or tumor was not found. They are less frequent at present than formerly because of the availability of antibiotic drugs over the past few years. The offending organisms were commonly staphylococci, streptococci, or colon bacilli. The conditions have been referred to as "acute septic kidneys."

Renal carbuncle was the diagnosis in several cases. The infection in such cases is often blood-borne, and septic renal emboli were commonly found. This type, now seldom seen, formerly constituted a group of dangerously ill persons, some of whom required immediate surgery. The majority of the 22

patients reported were operated upon 10 years or more ago. Like perinephritic abscess, the condition is becoming a vanishing urologic problem.

Renal tuberculosis

Renal tuberculosis accounted for 14 nephrectomies. This disease is also becoming much rarer than it was some years ago. The advancement in the care of pulmonary tuberculosis with its isolation of cases, together with widespread improvement in milk supply, are generally regarded as factors affecting the decrease in the incidence of renal tuberculosis.

We have regarded all cases of unilateral tuberculosis as surgical. Of late years the few cases we have seen have been treated pre- and post-operatively with streptomycin. We have usually insisted on an extended period of bed rest before operation. It is felt that any type of tuberculosis will become less active and possibly heal, to a minor degree at least, after rest in bed, so that systemic spread of the disease at operation is less likely to occur.

The use of streptomycin, with or without para-amino salicylic acid, has been reported to be of considerable value in the treatment of renal tuberculosis. Para-amino salicylic acid, commonly known as P.A.S., when used with streptomycin probably exerts two important effects. It seems definitely to inhibit the growth of tubercle bacilli and at the same time to delay or prevent the production of immunity by the bacilli against streptomycin. It is likely that we are well on our way toward the day when tuberculosis of the kidney may be treated in most instances by non-surgical methods. At present, however, when a demonstrable unilateral lesion is found with a normal opposite kidney, nephrectomy is to be advised after a period of treatment with streptomycin.

Hematuria of unknown cause

Persistent, uncontrollable hematuria of unknown cause accounted for 5 nephrectomies. In only one was any pathologic process found in the organ to explain the bleeding, and in this case a small, almost microscopic, papilloma was present. Idiopathic bleeding is not a favored term in this enlightened age. Yet four of these kidneys had bled persistently, and so severely as to endanger life, and no pathology, gross or microscopic, could be found to explain the bleeding. In such cases

one approaches nephrectomy most carefully, with due regard for the possibility of later occurrence of the same unknown process in the opposite kidney.

Trauma

Only four kidneys were removed because of trauma. Fortunately, the kidney, being movable, well covered with fat, and encased between two fairly strong layers of fascia, is not often severely injured. In cases in which the kidney is grossly traumatized, shock is so pronounced that immediate surgery can seldom be performed. Since bleeding in these cases is usually contained between the layers of fascia, conservatism is advisable in most instances. Trauma to the ureter either from surgery or other causes, in cases that are not seen promptly, may require nephrectomy. This was true in two of our cases. Injuries to the kidneys like that occurring to abdominal organs must be treated with due regard to shock and hemorrhage. They do not constitute a large group of nephrectomies.

Surgical Considerations and Procedures

When, and when not to remove the kidney is a much more important decision than the type of operation to be performed. The technical factors involved, drainage of the incision, type of closure, and other considerations about which so much is said and written, while important, cannot be said to demand primary consideration. No rules can be laid down; no dogmatic declarations propounded that will serve the best interest of each individual case. The factors to be considered are many, and the surgeon must, in the end, rely upon his own judgment and experience in making his decision. Due regard for the conservation of renal tissue, the capacity of the patient to withstand the procedure, the prospect that less radical treatment will be inadequate, and fair assurance that the patient will live longer and be more comfortable after the kidney is removed should be the guiding criteria.

Secondary or two-stage nephrectomy is often desirable. There were 22 such cases in our series. Preliminary nephrostomy is performed through a small incision and drainage instituted for a period of from one to several weeks. In general, this procedure is advised in those in whom obstruction and infection have resulted in enlargement and congestion of the kidney in an acutely ill

patient. After this period of drainage the small incision previously made is enlarged and the much contracted kidney is more easily and safely removed.

In the majority of our cases we have employed the classic type of nephrectomy—that is, the loin incision with retroperitoneal exposure. The twelfth rib has been removed in approximately one tenth of the cases. In 2, both the eleventh and twelfth ribs were removed. Rib resection greatly improves exposure, and should be done when the upper pole of the kidney cannot be well exposed and visualized. Good exposure adds much to the safety of nephrectomy. In cases of large tumors of the kidney, the transabdominal approach is to be preferred.

Mortality

In this series of 270 consecutive nephrectomies only 3 deaths occurred while the patients were in the hospital. This is a mortality rate of slightly more than 1 per cent and compares favorably with other mortality rates in less formidable types of surgical operations. One death was due to an Rh factor accident following transfusion in 1942. The other 2 were listed as being due to shock less than 24 hours after operation.

We do not consider that this apparently low mortality rate can be attributed entirely to skill and resourcefulness on the part of the surgeons. Surgery today owes much of its success to the ancillary services with which it is so fortunately bound in the modern hospital. Aside from the services of our medical colleagues we are indebted to the nursing service and various other technical departments for assistance in the intelligent care of the patients. Those of us who have practiced surgery over a period of many years recognize with appreciation the advances in anesthesia. Proper credit is seldom given to these capable and loyal members of the surgical team. Always important, good anesthesia may be the deciding factor of success in any operation.*

Summary and Conclusions

The causes for nephrectomy in a series of consecutive cases have been enumerated in the hope that some reduction in the incidence may occur. A professional responsibility is involved.

*The authors would like to express their appreciation to their department of anesthesiology under the direction of Mrs. Evelyn Auld. She and her associates have rendered much valuable service.

In the light of our present knowledge, little can be done other than earlier interpretation of the symptoms of urologic disease. Certainly congenital defects will continue to occur. There are at present no reasonable or very practical measures that can be employed to prevent calculus disease. Tumors and injuries we will continue to have. Infections, including tuberculosis, present a more hopeful picture, since, through the use of available (and possibly soon to be improved) antibiotics, these causes of renal destruction may be controlled.

Earlier diagnosis of stone and hydro-nephrosis may materially reduce the incidence of nephrectomy. Discovery of urinary malignant growths at a time when surgery may be employed will save many lives. It seems reasonable to predict that with constant improvement of the techniques of urologic investigation, together with our advances in chemotherapy, radiology, and bacteriology, the incidence of nephrectomy will, in the future, show considerable decrease.

THE USE OF RADIOISOTOPES FOR THE LOCALIZATION OF BRAIN TUMORS*

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The use of radioisotopes for the diagnosis and localization of brain tumors was first reported by George E. Moore, of the University of Minnesota, in 1948⁽¹⁾. A short time later an independent approach to the problem was presented by Selverstone⁽²⁾. Since these reports, several others have appeared. It is the purpose of this presentation to discuss, in general terms, the physiologic and physical aspects of the problem as applied by earlier workers in the field, and to mention briefly preliminary work leading to clinical studies in our laboratory.

In general, the diagnosis of brain tumor with radioisotopes is dependent upon the detection of relatively greater concentrations

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of isotopes in neoplastic tissues than in normal structures. To do this, two requirements must be fulfilled. First, some biologic property of the lesion must favor concentration of the isotope or its carrier compound in the lesion. Then there must be a radiation detection device capable of measuring differences in isotope concentration in normal and pathologic areas. Accurate localization of a known brain tumor requires a sharp delineation of concentration differences and the application of the data to a suitable coordinate system referable to the head. This sharp delineation is dependent upon the physical properties of the radioactive emanations employed and upon the solution of certain problems related to geometry of radiation counting about the head. That both the physiologic and physical problems impose their limitations on the technique as a whole will become more apparent later.

Physiologic Basis for Selection of Isotopes

Efforts to satisfy the physiologic requirement have to a great extent, determined the isotopes used, and work in the field is divisible on this basis. Therefore, this portion of the general problem with a consideration of the specific methods of earlier workers will be discussed first.

The uptake of isotopes by brain lesions is founded upon two basic observations. First, certain ions are taken up more rapidly or to a greater extent by abnormal than normal structures. Second, certain organic dyes penetrate tumors to a greater extent than normal structures.

Phosphorus³²

Phosphate occupies an intracellular position as a major anion. This ion has been shown to exchange slowly with normal brain tissue⁽³⁾ but to be rapidly incorporated into the acid soluble and later into the nucleoprotein fraction of tumors, particularly the infiltrating gliomas^(2,4). The technique utilizing this isotope was introduced by Selverstone in 1948⁽²⁾, and hinges upon the detection of portions of the pure beta emanation of P³² concentrated in tumor tissue with small probe Geiger counters 2 to 3 mm. in diameter⁽⁵⁾. The technique is of no value preoperatively, since the beta emanation (1.69 Mev) will not penetrate the intact skull, their range in brain being of the order of 7 mm. Older diagnostic procedures must be used for preoperative localization.

However, the originators feel that this procedure is of great value in their hands at the operating table, enabling them to locate subcortical lesions as well as aiding them to delineate pathologic from normal tissue. This is certainly desirable. The method requires probing with the counter of normal brain. Biopsy must still be relied upon for prognosis. The total extirpation of a tumor is frequently limited by the amount of tumor which can be removed without completely crippling the patient. While the technique is, perhaps, of limited value, it is a routine procedure with this group and further reports are awaited.

Potassium⁴²

The second method, utilizing a more rapid ion uptake or turnover, involves the use of K⁴². This is a most recent innovation, and was introduced by two separate Harvard groups⁽⁶⁾. Briefly it was reasoned that, because of its intracellular position as the major cation and its energetic gamma ray, K⁴² might be a more satisfactory tracer. It was felt that a rapidly metabolizing, cellular brain tumor might exchange isotope more rapidly and hence concentrate radioactivity to a greater extent than the less cellular, more slowly metabolizing normal brain^(6a). Since the gamma ray (1.51 Mev) easily penetrates the skull, it is possible to delineate areas of concentration from without the intact skull using a suitable counter. Since K⁴² also emits beta particles, one group has used this isotope for operative as well as preoperative localization^(6b).

Preliminary clinical results by both groups seem to show that the technique holds some promise. Potassium apparently is taken up in high orders of concentration by most tumors with the exception of astrocytoma. Glioblastoma and metastatic carcinomas yield the largest figures^(6b). The reasons for this are not clear at present. It is stated that the short half-life (12.4 hours) of K⁴² has proved a disadvantage and that this, in combination with the protection necessary for handling energetic radiations, had made the technique difficult to handle. A real limitation, difficult to overcome, arises through the tendency of K⁴² to exchange to a considerable extent with the potassium of muscle overlying the skull. This contributes a large counting rate over the temporal and occipital regions, and tends to mask lesions

located beneath. More specialized counting techniques will perhaps improve this situation^(6b).

Iodine¹³¹

The use of this isotope is founded upon an entirely different aspect of tumor behavior. Historically it is the first isotope to be applied to this problem.

In 1947, Moore⁽⁷⁾, following the work of Herly⁽⁸⁾, reported that he was able to differentiate some breast and gastric carcinomas in patients previously given intravenous injections of the anionic dye fluorescein⁽⁸⁾. His most consistent successes, however, were with brain tumors⁽⁹⁾. He was able to demonstrate dye in viable tumor cells. Iodine was added to the fluorescein molecule in an unsuccessful effort to concentrate enough dye to render lesions radioopaque. A natural extension of this idea was the "tagging" of fluorescein with the isotope I^{131} . The final step was the use of a directional counter to detect portions of the gamma rays of I^{131} (0.367 Mev) as they penetrated the skull. This was reported in May, 1948⁽¹⁾. Since then there have been several other reports⁽¹⁰⁾.

That fluorescein should concentrate in brain lesions in preference to normal brain structure is apparently due to a fortuitous difference in the behavior of tumors and normal brain tissue toward certain types of organic dyes. Friedman has summarized the work leading to the principle that the vessels of the brain, the so-called blood-brain barrier, are normally impermeable to anionic or negatively charged dyes and particles⁽¹¹⁾. Several other workers have shown that alterations in normal tissue structure—that is, damage to the barrier through electrocoagulation and thermocoagulation, and with angiographic contrast media—will allow penetration into the damaged area⁽¹²⁾. Certain tumors apparently have the same permeability characteristics as damaged brain.

There is now fairly substantial agreement that the amount of dye uptake necessary for diagnosis correlates with the cellularity, vascularity, and degree of vascular abnormality of the lesion studied. Diiodofluorescein has been found to concentrate significantly in brain tumors in the following descending order: glioblastoma, ependymoma, meningioma, ependymoblastoma, metastatic tumor, acoustic neurinoma, and astrocytoma^(10a). Cystic and avascular lesions take

up the dye poorly and are difficult to delineate^(10d, f, g, h). Further, areas of edema about the peripheries of tumors concentrate more dye than does normal brain tissue. It is to be emphasized that these are major physiologic limitations of the radiodye technique. Other limitations are inherent in the counting methods used, particularly with regard to the accuracy of localization. These will be discussed below.

Diiodo¹³¹ fluorescein is now available in purified form. In addition to Moore's experience^(10c, d) the clinical studies of two other groups are available, that of Davis and colleagues in Chicago^(10e, f, g), and that of Schlesinger, in New York^(10h). In the hands of the first two groups, the technique is said to have proven 95 per cent accurate as to positive and negative diagnoses. The last group has not reported statistically, but rather has documented what they consider to be limitations. The Chicago group, representing the largest clinical experience with 340 reported cases, seems to have had little difficulty in diagnosing lesions either above or below the tentorium. They emphasize, however, that careful attention must be given to counting techniques^(10f, g). The success of this group has not been duplicated.

One further method for the introduction of I^{131} into lesions has recently been advanced⁽¹³⁾. The isotope is "tagged" to human serum albumin. In preliminary work evidence of concentration in brain tumors has been found. This observation is perhaps indicative of the magnitude of the alteration of vascular permeability in certain tumor types.

Though the half-life of I^{131} is eight days, diiodofluorescein as the intact molecule is rapidly excreted, chiefly through the liver, in from two to three days. This shortens the time factor in calculations of radiation dosage. Furthermore, the relatively low radiation energies make it fairly easy to handle. Suffice it to say that the I^{131} techniques show real promise of becoming a safe, simple, pre-operative diagnostic aid.

Physical Considerations

For a given counter, isotope concentration differences are expressed by differences in counting rates. Areas of high concentration yielding high counting rates tend to indicate the presence of tumor. By plotting counting rates as a function of counter po-

sition about the head, an estimate of the location of a tumor should be possible.

In order to obtain reliable data, several considerations are necessary. Nuclear events occur at random. The counter records as background counts other events than those arising from the radioactive source. Therefore, a given number of counts per unit time must be shown to be statistically significant for the counter in use. The ideal experimental situation requires a high counting rate above the background counting rate. Counting rates near the background rate require longer counting times for the same reliability. In practical terms, higher counting rates are desirable to shorten procedure time and decrease patient discomfort.

Administered isotopes do not appear solely in the tumor or lesion under study. For this reason, an additional background of radiation in the head and body is encountered. For a given detector, this latter background may serve to increase the total counting rate obtained. This background in the head and body fluctuates with time in accordance with the biologic laws governing the particular isotope or compound in use. Thus, the problem also requires that counting rates be certified as significantly above a changing background rate in order to yield a reliable statement of the presence and location of tumors. This problem must be minimized by the presence of high concentration ratios and by the use of a sound physical and instrumental principle.

To locate a point in space, a suitable reference system is necessary. Thus, to locate a tumor, counting rates must be referred to the skull and underlying brain. To do this rigidly requires a coordinate system. Furthermore, the measuring system or counter employed must be capable of sharply resolving the limits of isotope concentration with reference to the coordinate system. This requires that either the radioactivity in the tumor or the detector be directional with respect to the origin of a nuclear event arising within a lesion. The effect of radiation scattering in a mass such as the brain must be minimized. Earlier workers employed the Geiger-Mueller counters as detectors, using suitable lead shielding and collimating slits to lower background in general and to protect against scattered radiation.

The use of a wide collimator with little shielding yields high counting rates, which

are desirable, but little directional sensitivity is inherent in such a system. Any effort to improve directionality is done at the expense of valuable counting rate.

Stringent efforts to obtain a very directional counter combine with the inherently low efficiency of the Geiger tube to make reliable data difficult to obtain. However, detectors with higher efficiencies for gamma rays improve the situation to an extent. Such a detector is available in the so-called scintillation counter. This counter consists of a certain type of crystal attached to the cathode of a large photomultiplier tube. When struck by radiation the crystal yields a fluorescent light pulse which is collected on the cathode of the tube for amplification as an electronic pulse. The latter pulse is then suitably recorded. This type of detector has been shown to count a considerably greater portion of the rays striking it than the older Geiger tube. Hence, it is considered more efficient. Many substances have the unique property of fluorescence when they are irradiated. Crystals of sodium iodide activated with thallium and crystals of anthracene are suitable for the problem in question.

When counting rates are plotted as functions of counter position about the head, a curve is obtained the shape of which is determined by several variables. The reasons for the shapes of such curves will not be explored here. Obviously the peak of the curve at a given level of plot represents concentrated radioactivity or tumor. The more exactly the area under the peak approaches the area containing concentrated radioactivity, the better the resolution of the system in terms of tumor location. For precise localization, a high degree of resolution is required.

The battle between resolution and counting rate is a constant one. It is this difficulty which has caused earlier workers to resort to the so-called "normal" method of counting⁽¹⁰⁾. This method utilizes symmetrical comparison of many positions about the head with the detector placed against the head. By comparison of one side of the head with the symmetrical opposite, and with the normal head estimates of tumor, location may be made. This is admittedly a compromise technique which sacrifices accuracy of localization if for no other reason than lack of a rigid coordinate system. At the present stage of development of the isotope

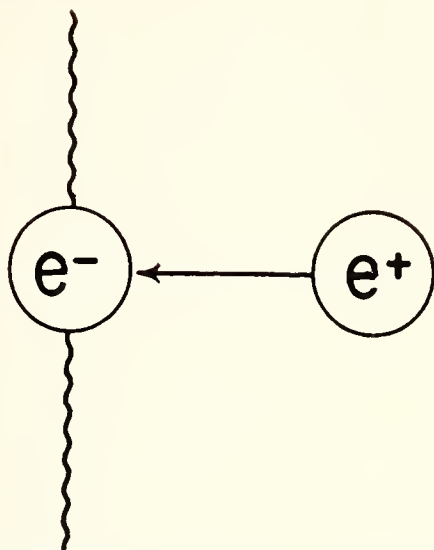


Fig. 1. Diagrammatic depiction of the production of the annihilation gamma as the positron (e^+) strikes an electron (e^-).

techniques, resolution must be sacrificed for counting rate. This is certainly true for the tumor to brain isotope concentration ratios obtained to date.

In our laboratory at the time of this presentation, effort is being made to study these technical problems. It occurred to us that better resolution might be obtained through the use of a technique involving the use of positron-emitting radioisotopes. Positrons have the mass of an electron but bear a positive charge. At the end of their paths in air or matter they are attracted to and collide with available electrons, and are annihilated⁽¹⁴⁾. Upon collision, two gamma rays (0.511 Mev) emerge, and these are oppositely directed with a precision of one third of a degree (fig. 1)⁽¹⁵⁾. If, then, a detection system which counted these oppositely directed rays simultaneously were employed, a count would be indicative of a radioactive source lying somewhere along a straight line joining the two opposing counters. Such a counting method is known as coincidence counting. In the absence of scattering, no lead collimator should be required, since the directional characteristics of the system are inherent in the radiation and independent of the detector. Because of the stringent demands made upon counting rate by such a system, scintillation counters are mandatory.

Preliminary physical data regarding this technique have been reported⁽¹⁶⁾. Since Cu⁶⁴

is a readily available positron emitter, the problem of concentrating this isotope in brain lesions has been approached. This appears feasible through the use of the anionic dye copper phthalocyanine, an experimentally innocuous compound which can be synthesized in sterile solution in from two to three hours. It penetrates only those areas of brain which have been damaged⁽¹⁷⁾.

Summary and Conclusion

It should be emphasized that these procedures are at present experimental and as yet in the early stage of development. The technique of intracranial localization at the time of operation for brain tumor appears to be of limited value as an adjunct to standard neurosurgical procedure. The techniques for the preoperative localization of brain tumors from without the intact skull have shown real promise of becoming important diagnostic aid to the neurosurgeon. Of the latter technique suggested to date, the use of I¹³¹ as diiodo¹³¹ fluorescein with the so-called "normal" method of counting appears to be the most satisfactory. There is still need, however, for real improvement in the definition and accuracy of localization. Further experimentation is needed to make the procedure sufficiently practical for widespread routine use.

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Abstract of Discussion

Dr. G. Westbrook Murphy (Asheville): We must appreciate the fact that at the moment when man learned that he could release a predetermined amount of atomic energy at a selected time and place, the atomic era had begun. I do not know about you as psychiatrists and psychologists; but, as an average human being, I confess that my mind has refused to accept the awful implications of that event.

I have had no experience with the use of radioactive isotopes and the localization of space-occupying brain lesions. I have only had the advantage of this excellent paper and the bibliography which was included. Because it was the most optimistic, I especially enjoyed the report of Dr. Davis and his associates from Northwestern University, to which Dr. Wrenn referred. I was also struck by the remarkable accuracy of the results reported. Dr. Wrenn says that this work has not been confirmed, but time may correct that. Dr. Wrenn and Dr. Good have reviewed the work that has been done, and, it seems to me, have made a real contribution in the use of the positron, with its directional tie.

Being engaged in the daily practice of medicine, I wondered how this procedure (the use of diiodofluorescein, or perhaps other compounds) could be utilized in our practice. First is the question of safety. We are often hesitant about using air studies and other procedures in patients in whom there is considerable increase in intracranial pressure. Since this method is reported to be entirely safe, it would obviously be of particular advantage in those cases. I was also interested in the observation that this method provides a clue to the degree of malignancy of the tumor itself, and in the possibility of using it to detect postoperative recurrences. I have read that this radioactive dye has a tendency to become

concentrated in lesions which have been subjected to irradiation therapy. That observation caught my eye because of the therapeutic implications.

In conclusion, I would like to congratulate these young scientists for adding another stone to the edifice of human knowledge.

SOME OPPORTUNITIES AND OBLIGATIONS OF THE MEDICAL PROFESSION TO INDUSTRY

MAC ROY GASQUE, M.D.

and

NORMAN BOYER, M.D.

PISGAH FOREST

The strength of our nation and of our state is closely related to, and proportionately dependent on, our industrial development. Our culture, our standard of living, and our mode of life intimately reflect industry's achievements. Medicine too, of course, can be properly credited with important contributions to the strength and standard of living of our nation and of our state. That industry and medicine should get together is only natural. The surprising thing is that it has taken so long.

Industrial Employment in North Carolina

North Carolina leads all southern states in the number of persons employed in industry. North Carolina leads all southern states in the value of manufactured products. Our State Department of Conservation and Development has released the following facts:

In North Carolina there are approximately 1,400,000 non-domestic persons employed in combined manufacturing and agricultural pursuits. Almost a million of these persons are employed in manufacturing. These people work in approximately 15,000 different industrial establishments. Fifty-eight industrial plants employ more than 1,000 persons. One hundred and twenty-nine plants or industrial establishments employ between 500 and 1,000 persons. There are almost 15,000 so-called small plants, each of which employs less than 500 persons, and over a half-million North Carolinians are involved in this category.

According to the latest directory of membership of the Medical Society of the State of North Carolina, only 10 North Carolina physicians consider themselves industrial

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physicians. Since these men represent less than $\frac{1}{2}$ of 1 per cent of the State Society membership, it becomes obvious that if industry is to have medical services, these services must come from physicians who do not consider themselves primarily industrial physicians. This means that industry must secure its medical services largely from general practitioners who are employed or retained on a part-time basis.

The purpose of this paper is to outline briefly some of the basic objectives in supplying medical services to industry, and to offer suggestions as to how and by whom these goals may be approached. With reference to our profession as a whole, little thought has been devoted to the subject and problems of industrial medicine. The medical needs of industry are not casual; and, though broad in scope, are also specific.

Who among us shall serve industry? Among industrialists and physicians interested in this matter, strong convictions are present. Industry needs and deserves quality medical service. For this service, fees are usually sufficient and nearly always promptly paid. It is suggested that before any of us agrees to perform industrial medical services, let us first examine our interest in the business of serving industry, and estimate the time that we can give to it. Are we willing to study plant working conditions, compensation laws, disability evaluation, pension programs, and so forth? Are we willing to help the nurses and supervise them in their work? Are we willing to relate the problems of management to those of the worker and try to bring them together so that the worker will be more effective, better adjusted, and happier—so that management will be able to realize higher earnings and increased prosperity? If the answer to these questions is in the affirmative, then we can proceed to the consideration of such matters as remuneration, fees, and concurrent advantages to private practice.

When industry requests—and this has happened to many of us—that a physician serve on a part-time basis, he should recall that a great deal more is involved than simply calling at the plant dispensary at intervals to treat minor injuries and referring a sizeable per cent of the employees to his private office for additional remunerative practice. A masquerade of interest in industrial medical problems is difficult to maintain when the services rendered are little

more than an occasional call at the first-aid dressing station. If physicians practicing part-time industrial medicine cannot give industry high quality medical service, then the assignment should be avoided. Industry will never be satisfied with casual or indifferent services.

Medical Services Required by Industry

The basic services needed by industry can perhaps be outlined as follows:

1. Physical Examinations

Pre-placement or pre-employment examinations: The pre-placement or pre-employment physical examination of all prospective employees should include a careful inquiry into the man's medical and occupational history and an assessment of his general physical condition, his fitness for specific work, his mental aptitude, and, in addition, his attitude toward other employees. Early in the development of a relation with an industry, a physician should familiarize himself with the various jobs within the plant and with what each involves in terms of standing, walking, running, pushing, pulling, lifting, raising above the shoulders, near and far vision, hearing, speed of operation, monotony, intermittency, and so forth. These considerations, combined with observations made by the industrial nurse and the plant employment officer, greatly aid the industrial physician in fitting the candidate for employment into the work for which he is best suited.

Periodic examinations: These examinations should be scheduled according to age, sex, the findings on the first examination, transfer to other work, and special departmental hazards. Such serial examinations are of much greater value in early diagnosis than any single examination. It would appear obvious that older employees need periodic examinations more often than do younger employees. The importance of periodic physical examinations in the relatively young employees, however, should not be minimized. In the older age employee, tissue changes, pathologic physiology, the pattern of life, habits, and so forth, are frequently irreversible. It may be possible, on the other hand, to guide the younger employee into sounder habits of eating, rest, dental health, and mental hygiene, and thus have a more potent impact on the preservation of the health of any individual. In addition, our

total manpower is fortified. Emphasis should be directed to the importance of including executives in this phase of the industrial medical program.

Back-to-work examinations: The examination of employees returning to work following illnesses or injuries of either occupational or non-occupational origin is necessary for temporary placement in a rehabilitation scheme or for permanent placement in a variety of occupations which minimize the difficulty and utilize in full the man's remaining ability. Some workers may return to work too early; others sometimes abuse their disability compensation privileges as well as their psyche by remaining away from work too long.

Special departmental examinations: The special examination of employees who are exposed to occupational hazards such as lead, benzol, irritating dusts, toxic gases, radiation effects, and prolonged thermal variants, should be performed at appropriate intervals. These examinations should include pertinent laboratory tests for aid in identifying early tissue changes and physiologic deviations.

2. Therapeutic services

Plant injuries: To render or make available definitive medical care for all industrially induced disability is rapidly becoming the standardized pattern in American industry. This is the industrial physician's duty, and when it is necessary to transfer a patient to the care of a consultant, the industrial physician should keep in contact with the injured employee, and in every practical way offer encouragement to both him and his family. Management and, where appropriate, labor groups should also be kept informed of the progress of any injured employee.

Personal injuries and illnesses: Where injuries and illnesses of a non-industrial origin are encountered, the worker should be referred to his regular physician, and the industrial physician should give only such treatment as will relieve the temporary complaint or help the worker finish his shift. In sufficiently urgent cases the employee should be immediately referred to his physician, and, where necessary, transportation should be provided.

3. Health education

The industrial physician should play a leading role in matters that refer to the

health of the individual worker and his family. This properly can take the form of occasional lectures to employee groups, the distribution of informative literature, and the showing of appropriate movies on such subjects as nutrition, dental care, obesity, and vaccination. From time to time, when serious injury or catastrophe is a reasonable possibility, it is proper for an industrial physician to instruct certain strategic employees in matters of first aid. It would appear profitable that this instruction concern itself principally with such life-threatening circumstances as (1) free bleeding, (2) obstruction of the airway, and (3) a sucking wound of the chest.

In some specific situations it may be also valuable to give instructions in such matters as the splinting of limbs and transportation of the injured. The value of calmness and equanimity on the part of those administering first-aid should be stressed. Much time can be wasted and confusion created by lengthy instructions in intricate methods of bandaging, the physiology of shock, the administration of narcotics, and so forth.

4. Medical records

The matter of medical records for industrial patients, is, perhaps, even more important than it is in the private practice of medicine. Provisions should be made for the three following basic needs:

a. Clinical aspect: Continuity of the clinical aspects of the record aids in taking care of the individual case. All physicians, of course, are familiar with this principle, and no short cuts should be taken with industrial patients.

b. Medico-legal aspect: Industrial injuries and illnesses frequently result in settlement by compensation commissions. Accurate and pertinent information on the medical record regularly makes it possible for the courts and appropriate jurisdictional bodies to render just and intelligent action. Such records are frequently the most important factor when these cases become involved in litigation.

c. Analysis of medical department activities: The analysis of medical department activities frequently makes it possible to achieve greater efficiency and economy by changing medical department routines, procedures, and so forth. Management is interested in the affairs of its medical department, and an informed management is likely

to be more cooperative in matters relating to industrial health.

All industrial workers should be thoroughly acquainted with the fact that medical records are strictly confidential, and that under no circumstances will they ever be made available to supervision or personnel officers, or be used for purposes of promotion, transfer, discharge, and the like. On appropriate request, of course, all medical records should be made available to the private physician of an industrial worker.

Fitting the Job to the Man

A good deal has been said about fitting the man for the job. Another point of view which should not be neglected is fitting the job to the man. The industrial physician should cooperatively confer with safety engineers, departmental foremen, personnel officers, and so forth, with regard to such in-plant conditions as safety, toxic hazards, and morale.

In making recommendations to management on fitting the job to the employee, the industrial physician should not rely on information received from others, but should thoroughly familiarize himself with working conditions throughout the plant. Such environmental conditions as excessive heat, dampness, poor lighting, noise, vibration fatigue, long hours of work, and monotony, seriously affect not only the health and morale of the worker, but also his productivity. Even where working conditions are apparently good, poorly designed equipment such as a conveyer system of improper height, or even stools and chairs which do not allow the workers' feet to rest comfortably on the floor, may be important factors in producing fatigue in the individual. The observant industrial physician can often suggest rather obvious things which will bring about improvements in working conditions. Frequently, an industrial physician can render much good by suggesting that qualified experts be consulted on subjects as toxicology, industrial hygiene, and safety. From the standpoint of sanitation, the medical supervision of washrooms, cafeterias, and general housekeeping is important.

Developing a Successful Program

Every industrial physician should continually be interested in developing and modifying the medical program that best suits his individual situation. Medical department rou-

tines must necessarily at times be subordinated to the production and operational requirements of various departments. Lack of flexibility in medical department schedules can cause misunderstanding and even resentment among foremen and supervisors, who have production schedules to meet.

Much can be gained by association with other physicians interested in industry, and by attendance at medical conferences and meetings where problems of industrial medicine are discussed.

Perhaps no single factor in industrial medicine is more important to success than properly and clearly establishing authority and responsibility within the individual industrial establishment. Industrial physicians must necessarily assist, work, and cooperate with personnel directors, safety engineers, production managers, and supervision generally. However, the industrial physician should not at any time be responsible or subservient to the philosophies, policies, or instructions of any of these men.

To begin with, a physician who has the strength, integrity, and education to be useful and successful in industrial medicine does not need supervision by non-policy-making individuals. Nothing can be more disconcerting or thwarting to him than to find himself responsible to a department head who is unsympathetic, uninformed, or indifferent to the objectives of the medical program. With reference to the physician, such a situation frequently leads to uselessness, frustration, failure, and frank withdrawal. A considerable number of industrial medical programs are doomed to failure because the physicians in charge do not have sufficient authority to associate in administrative equality with other major departmental heads. All physicians contemplating a professional relationship with industry should insist on being responsible to the chief administrative executive or his designated policy-making associate or assistant. An extremely large measure of success in industrial medicine is directly related to the confidence and support of the physician and his medical program by the policy-making executives.

Conclusion

Industrial workers deserve good medical care. Physicians will find that industrial medical work can be stimulating and worthy of their best efforts. It is a difficult, but a satisfying type of medical practice.

A SURVEY OF THE HYPOMETABOLIC STATES

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Within the last decade the fields of internal medicine and endocrinology have been drawn closer together through advances in the study of metabolism. As a subdivision of this latter field, entities causing a clinical state of hypometabolism are assuming increasing importance.

No longer can it be stated didactically that the thyroid is primarily at fault in every case of hypometabolism. Nor does the administration of thyroid substance lead to regression of symptoms in every patient. On the contrary, in certain instances treatment with thyroid substance may be injurious to the patient. The role of other endocrine glands—namely, the pituitary, the adrenal, and the gonads—as a primary cause for altered function of the thyroid gland is becoming a more established fact.

The well known signs and symptoms of hypometabolism are as follows: lassitude, both physical and mental, with a characteristic energy curve which is low in the morning and rises towards evening; increased sensitivity to cold; daytime drowsiness and nightly insomnia; dry, coarse skin and hair; brittle or scaling nails; relative bradycardia; low oral temperature; a tendency to gain weight easily; and hypochromic, microcytic anemia.

Classification

Hypometabolic states can be divided etiologically into three major classes: (1) primary hypothyroidism, in which the thyroid gland itself is the cause of the hypometabolic state; (2) secondary hypothyroidism, in which a disease process alters the normal function of another gland of the endocrine system, which in turn, affects the normal function of the thyroid; (3) hypometabolism due to miscellaneous causes. Into the latter group fall numerous and varied clinical entities.

Primary Hypothyroidism

The majority of cases of hypometabolism are caused by primary disease or destruction of the thyroid gland. These conditions

may be listed as follows:

1. Endemic or sporadic cretinism—which may be caused by the absence or degeneration of thyroid tissue due to iodine lack, agenesis, or infection *in utero* or early infancy—namely, syphilis
2. Spontaneous myxedema (juvenile-adult)—a primary atrophy of unknown etiology
3. Postoperative hypothyroidism
4. Post-traumatic hypothyroidism
5. Post-irradiation hypothyroidism
6. Replacement by cyst or adenoma
7. Post-thyroiditis (with exhaustion)
8. Riedel's struma (woody thyroiditis)
9. Burned-out Graves' disease
10. Chemical interference in thyroid function by the thiocyanate-thiouracil groups, in particular, and other goitrogenic substances—believed to inactivate iodase enzyme systems
11. Senile changes (etiology unknown)
12. Chronic overindulgence in iodine
13. Lack of adequate iodine, or tyrosine and phenylalanine.

The thyroid hormone

During the latter part of the nineteenth century investigation established a definite relationship between the clinical state of myxedema and the thyroid gland. In 1895 Bauman found iodine to be a constituent of thyroid tissue, and still later Kendall isolated the active principal, to which he gave the name "thyroxin." The present theory for the formation of the thyroid hormone by the acinar cells of the thyroid gland is as follows: *Inorganic iodine* and the amino acid *tyrosine*, both ingested with a normal diet, combine in the thyroid cells to form *diiodotyrosine*. The presence of an iodase enzyme system is necessary for this reaction. Two molecules of *diiodotyrosine* then couple to form *thyroxin*. Within the confines of the thyroid gland, the hormone is stored as a compound combination of thyroxin and diiodotyrosine, called *iodothyroglobulin*. It is thought that this protein is too large to enter the circulation. Therefore, when thyroid hormone is needed, *iodothyroglobulin* is converted into a simple polypeptide, *thyroxin*, which is released into the blood stream.

Thus any intrinsic disease, physical or chemical injury, or lack of "building blocks" to form the thyroid hormone, will cause partial or total loss of hormone production and *primary hypothyroidism*.

Secondary Hypothyroidism

Altered function of the thyroid gland may be produced by disease or physical damage to another endocrine gland.

1. Anterior pituitary hypofunction
 - a. Chromophobe tumor
 - b. Fröhlich's syndrome
 - c. Simmond's disease — Sheehan's syndrome
 - d. Idiopathic exhaustion
2. Adrenal deficiency
 - a. Addison's disease
3. Gonadal hypofunction
4. Inhibitors or antagonists (anti-hormone) at periphery.

Anterior pituitary hypofunction

Reliable investigation has demonstrated a close interrelationship between the thyroid and anterior portion of the pituitary gland. The latter produces and liberates a thyroid-stimulating hormone — namely, the thyrotrophic hormone. The activity of the thyroid gland is under direct control of this hormone. Likewise it is assumed that the quantity of circulating organic iodine, thyroxin, is the stimulus for the production and liberation of thyrotrophic hormone. Thus, in states of primary thyroid hypofunction, circulating thyrotrophic hormone is increased in an effort to increase the hormonal output of the thyroid. Conversely, in primary hypofunction of the anterior pituitary gland the formation of thyrotrophic hormone is diminished or absent. Therefore, the normal stimulus to the thyroid is deficient, and hypofunction of the gland results. Clinically, the signs and symptoms of hypometabolism or hypothyroidism are apparent. This process occurs in Simmonds' disease, Fröhlich's syndrome, and chromophobe adenoma of the pituitary gland.

Since the pituitary gland produces a multitude of hormones which stimulate other endocrine glands in addition to the thyroid, the resulting clinical picture is not readily confused with that of primary hypothyroidism. In addition, present day laboratory tests, described in various texts, are available to confirm the diagnosis.

Adrenal deficiency

The interrelationship between the adrenal cortex and thyroid gland is not as clear as that of the pituitary-thyroid axis. Adrenal cortical insufficiency is commonly accompanied by a decrease in the basal metabolic

rate, which is reflected in reduced thyroid activity. Conversely, administration of desiccated thyroid substance causes adrenal enlargement and histologic changes which are interpreted as increased cortical activity. Addison's disease, the final stage of hypofunction of the adrenal cortex, produces as one of its early features a lowered basal metabolic rate and symptoms of hypometabolism. However, a critical history and physical examination, in addition to specific laboratory tests, usually clarifies the diagnosis.

The confusion of hypopituitarism or hypoadrenalism with primary hypothyroidism and its treatment with thyroid substance, may be disastrous. Adrenal crisis and sudden death may be precipitated by thyroid therapy. For this reason alone, careful diagnosis is imperative.

Gonadal hypofunction

That diminished production of gonadal hormones may cause hypometabolism is not conclusive. An interrelationship between the gonads and thyroid glands is suggested by the fact that: (1) normal thyroid function is necessary for development of the gonads; (2) that thyroid enlargement is frequently observed at puberty and during menstruation or pregnancy; (3) that castration in the dog or rabbit leads to a slow reduction in the size of the thyroid and a depression of the metabolic rate; (4) that conversely, at the climacteric in human subjects, thyroid enlargement and hyperfunction are not uncommon.

It is suggested that the thyroid-gonadal relationship may be mediated through the pituitary gland. Nevertheless, obesity, lethargy, and reduced basal metabolic rate are observed in some instances of hypogonadism. Again careful evaluation of the case will lead to the correct diagnosis.

Inhibitors

Finally, as a possible cause of secondary hypothyroidism, it has been postulated that there may be formed at the receptor cells, inhibitors or antagonists which interfere with the peripheral action of thyroxin. This theory is undergoing investigation at the present time.

Hypothyroidism due to Miscellaneous Causes

The following clinical conditions may be listed as causes of hypometabolism:

1. Post-sedation
 - a. Acute—from single large dose
 - b. Chronic—from multiple small doses (addiction)
2. Chronic diffuse or protein starvation
3. Hypovitaminosis
4. Chronic wasting disease
5. Acute illness
6. Prolonged inactivity
7. Depressed mental states
8. Fatigue
9. Physiologic causes ("the waste basket")

During recent years several articles have appeared in the literature in which sedation, both chronic and acute, has been found to cause a reduction in the basal metabolic rate. It is assumed that this reduction is due to the reduced oxygen requirement of tissue cells. Barbiturates have been particularly incriminated in this role.

Following the last war, liberated allied troops from Japanese prison camps suffering from starvation and hypovitaminosis were found to have a low basal metabolic rate. With proper diet and restoration of a positive nitrogen balance, the basal metabolic rate returned to normal levels.

The same has been found to be true in chronic wasting diseases such as carcinomatosis, and also during the recovery phase of acute illnesses.

The lowered basal metabolic rate in depressed mental states and prolonged inactivity, as in anorexia nervosa, is well known. In these states, protein starvation, hypovitaminosis, and chronic fatigue are also present.

In addition to the above hypometabolic entities, a final category is one which is best termed physiologic hypometabolism — "the waste basket." This term is reserved for those cases which present no signs or symptoms of the hypometabolic state, the only abnormality being a consistently lowered basal metabolic rate. It is not surprising that occasionally one finds a patient fitting into this category when one considers that a normal basal metabolic rate is based on a mean value of a large group, and that some values fall outside this so called "normal." It is in these cases that there is no justification for thyroid therapy.

Summary

1. A critical history and physical examination accompanied by the proper laboratory tests are of the utmost importance in

establishing a correct diagnosis in a hypometabolic state.

2. One must remain alert to the fact that hypofunction of endocrine glands other than the thyroid may produce hypometabolism.

3. Inanition due to a variety of causes may produce a hypometabolic state.

4. Therapy must depend on a correct diagnosis in each case.

Discussion

Dr. William N. Nicholson (Durham): Thank you, Dr. Spaeth, for an excellent presentation of a difficult subject.

With regard to the differential diagnosis of the "waste basket" group that Dr. Spaeth has mentioned, I would like to say that if at any time it seems necessary to administer more than 3 grains of desiccated thyroid substance to a patient, that patient does not have hypothyroidism and the administration is not only unwarranted but detrimental to the patient. I would also like to emphasize the grave danger of administering thyroid substance to a patient with secondary hypothyroiditis, particularly that secondary to the pituitary gland.

CYSTIC DISEASE OF THE LUNGS

Lower Accessory Pulmonary Artery Syndrome

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The subject of cystic disease of the lungs at once brings to mind a chaotic series of confusing, overlapping, and sometimes redundant terms. Among them are: air cysts, lung cysts, pneumoceles, pneumatocoles, bullae, bullous emphysema, blebs, bronchial cysts, bronchiolar cysts, alveolar cysts, polycystic lung, cystic bronchiectasis, saccular bronchiectasis, honeycomb lung, fibrous dysplasia, alveolar agenesis, acquired cysts, congenital cysts, septic abscesses, parasitical cysts, and germinal rest cysts.

In attempting to clarify the various types of lung cysts, I shall first give Webster's definition of cyst: "cyst, from the Greek *kystis*, bladder or sac. A pouch or sac without opening, provided with a distinct membrane and containing fluid, or semi-fluid matter, abnormally developed in one of the natural cavities or in the substance of an organ."⁽¹⁾ Obviously a cyst may rupture into a bronchus and thus not be walled-off. Or conversely, an open, communicating lesion

⁽¹⁾ Read before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Pinehurst, May 9, 1951.

may become blocked and thus become a cyst. Moreover, a bronchiectatic pouch or diverticulum may never be completely walled-off and thus never be a true cyst.

A cyst may be lined with epithelium, smooth muscle, and bronchial cartilage; with septic granulation tissue or fibrous tissue; or with a reactionary capsule resulting from the action or production of material secreted by a parasite such as the *echinococcus hydatid*. A cyst may contain gases of various composition, watery fluids, liquid or inspissated purulent matter, parasites in various stages of development, ectodermal elements such as teeth, skin, hair, and sebium as in dermoid cysts, and calcified inflammatory residuals.

Thus it is seen that the term cystic disease of the lungs covers a wide latitude of possibilities, and it is no wonder that such confusion exists in accurate differentiation. The subject is further confused by attempting to separate congenital cysts from acquired ones. Moore⁽²⁾ and Menefee⁽³⁾, and others have commented on the great difficulty in clinically, and sometimes pathologically, differentiating secondarily infected congenital cysts from acquired true lung abscesses. In these cases of infected congenital cysts, the expected lining epithelial, smooth muscle, and cartilaginous components may be completely destroyed or eroded by gangrenous processes, in which case the pathologist may be unable accurately to establish the true nature of the cyst. The question is further complicated by the controversy as to whether or not normal pulmonary alveoli have an epithelial lining in addition to a mesothelial basement membrane. The great pulmonary anatomist, William Snow Miller⁽⁴⁾, after carefully compiling previous evidence and adding to it his own painstaking studies, concluded that normal alveoli do have a lining epithelium, but many pathologists maintain that they do not.

Once considered rare, pulmonary cysts are now seen very frequently by chest physicians and thoracic surgeons. According to Adams⁽⁵⁾, congenital cysts almost always announce their presence by one or both of the two following mechanisms: (1) disturbance of intrathoracic pressure relations due to overdistension of the pulmonary cyst; (2) symptoms of pulmonary suppurative disease following infection of the cyst. Otherwise their presence may go unheralded for many years until suddenly symptoms appear.

Classification

Numerous classifications of congenital pulmonary cysts have been presented. Hyde and others⁽⁶⁾ quote Willis and Almeyda's⁽⁷⁾ division of cystic pulmonary lesions into two groups: (1) those derived from bronchi, as solitary or multiple bronchial cysts or cystic bronchiectasis; and (2) those derived from alveoli, as solitary alveolar cyst, pneumatocele, and cystic emphysema. Norris and Tyson⁽⁸⁾ believe the fundamental lesion to be focal dilatation of small bronchi or bronchioles. Isolated segments of bronchi may develop into gradually enlarging cysts. They believe the process to be similar to those described in polycystic kidney, liver, and pancreas.

In an attempt to formulate a logical, working system of pulmonary cystic disease, I have prepared a further classification which is modified from a consolidation of two outstanding classifications in the literature, those of DiRienzo⁽⁹⁾, and Murphy and Piver⁽¹⁰⁾.

Classification of Pulmonary Cysts

- I. Congenital Cystic Disease
 - A. Growth arrests (usually impure when modified by pulmonary dynamics or infection)
 1. Pulmonary agenesis: Growth cessation at appearance of primitive bud development from lung segment (when bilateral, incompatible with life)
 2. Air cysts: Growth cessation at third to fifth months when secondary branches form
 3. Alveolar agenesis: Growth cessation at fifth month, when third, fourth, and terminal branches form
 4. Cystic (sacciform) bronchiectasis (bronchial diverticulosis): Growth cessation at seventh month (may also be acquired as seen below)
 5. Polycystic lung (fibrous dysplasia, honeycomb lung): Growth cessation at ninth month
 - B. Other congenital anomalies
 1. Germinal rests (teratomas and dermoids): When thoracic, usually mediastinal but sometimes intrapulmonary
 2. Arterial anomalies (case reported): Lower accessory pulmonary artery syndrome with or without intralobar sequestration
- II. Acquired Pulmonary Cysts
 - A. Blebs—pleural
 - B. Pneumatocoeles—parenchymatous, alveolar
 - C. Bullae—with or without emphysema, alveolar or interstitial
- III. Acquired Cystic Bronchiectasis (compare I.A.4)
- IV. Miscellaneous: True lung abscesses, parasites (*echinococcus*), fungi, trauma, etc.

Treatment

Once diagnosed, lung cysts are preferably treated surgically by bronchoscopic or thoracotomy drainage, if possible, and resection.



Fig. 1. Note two large cystic areas in left lower lobe.



Fig. 2. Lateral projection showing location of cysts.

They have no normal function and are potentially hazardous if left untreated.

Case Report

A 26 year old recently married nurse-anesthetist was admitted to the hospital with a fever of 102 F. and an acute left-sided pleurisy of four hours' duration. She had a dry, painful, non-productive cough. Recently she had had some morning nausea due to a two months' pregnancy, during which time she had gained about 6 pounds. About three months prior to the present illness she had had a sore throat and fever. At that time she had also had a sharp, stabbing pain on her left side. This episode subsided uneventfully after penicillin was given. There was no history of previous pleurisy, chronic cough, hemoptysis, or other pulmonary disease.

The history revealed that one aunt had had tuberculosis, but had had little contact with the patient. One year previously the patient had had a transient episode of microscopic hematuria. For the past year and one-half she had not been outside of western North Carolina except for a short trip to Florida. She had been working actively as an anesthetist prior to the present illness.

The physical examination revealed a well developed and well nourished young woman in acute distress from severe pain in her left side, made much worse by deep inspiration and cough. The temperature was 102 F., pulse 100, respiration 32, and blood pressure 118 systolic, 70 diastolic. There was no cyanosis or venous distension. Skin, lymphatics, bones and joints, and sense organs were normal.

Examination of the chest disclosed rapid, splinted breathing, with a respiratory lag on the left. No increased tactile fremitus was noted. On percussion the heart was found to be shifted slightly to the right, with slightly increased dullness at the left base. The left diaphragm was thought to be slightly elevated. No rales were heard on auscultation, and breath sounds were distant at the left base both

anteriorly and posteriorly. There was no friction rub, and no definite signs of cavitation or consolidation were noted. The remainder of the examination was negative except for signs of early pregnancy.

Accessory clinical findings: The complete blood count showed no anemia, but there was a leukocytosis of 25,000, with a shift to the left. A urinalysis was negative. No sputum was produced. Roentgenograms of the chest (figs. 1 and 2) showed two large cystic cavities in the left lower lobe. Each had fluid levels and appeared to be ballooning out at the expense of normal lung tissue. The cavities appeared to be moderately thick-walled, and a small peripheral reaction zone was noted. A review of a single photofluorographic film taken two years previously showed hazy outlines of the upper cavity only. This film had been read as negative at the time.

Course in the hospital: The patient was given penicillin and later streptomycin, but the pain and fever continued unabated. Intercostal nerve blocks were of temporary benefit. Two doses of artificial pneumoperitoneum were given in an effort to relieve the pain and also to outline the lower border of the diseased lung. Temporary relief was obtained (fig. 3). Dr. Julian Moore was asked to see the patient in consultation. He performed an essentially negative bronchoscopy. No stenosis was noted. Slight inflammation of the bronchial mucous membranes was seen, and there was no purulent material escaping from the bronchi. Smears of bronchial secretions showed numerous bronchial epithelial cells, with a few microphages and polymorphonuclear cells.

An open thoracotomy tube drainage of each cavity was performed, and the pain and fever immediately subsided. Histologic examination of tissue removed at this time revealed epithelium consistent with bronchial structure, and marked inflammatory reaction both acute and chronic. Numerous eosinophils and proliferating fibroblasts were noted. The

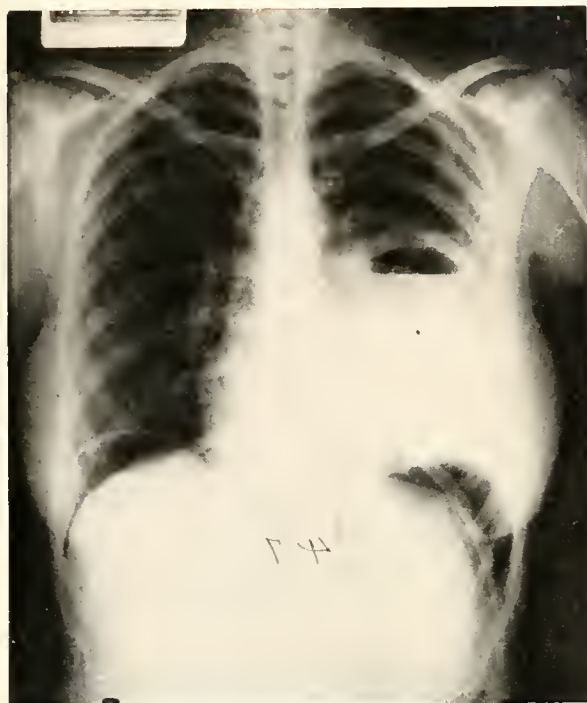


Fig. 3. Roentgenogram following induction of pneumoperitoneum.

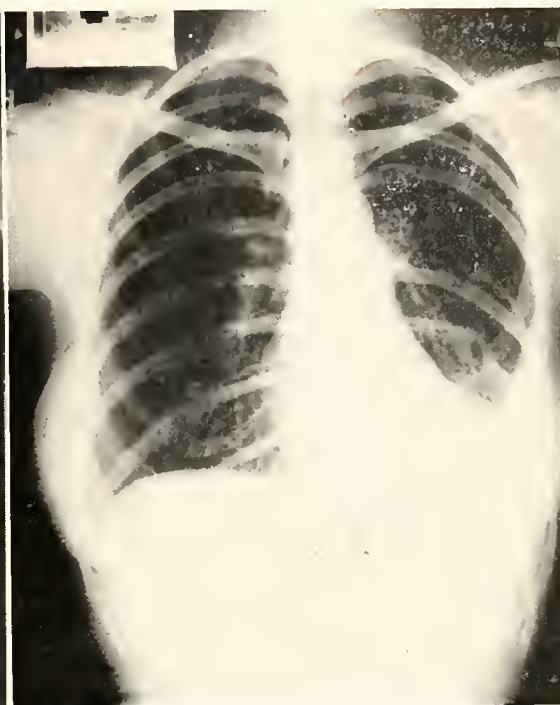


Fig. 4. Roentgenogram following thoracotomy and lobectomy.

diagnosis was congenital cystic disease of the lungs, and early pregnancy.

The thoracotomy tubes were periodically irrigated until the eighth month of pregnancy, at which time Dr. L. Rathbun performed an uneventful cesarean section. Two months later Dr. Moore did a left lower lobectomy. Cyclopropane, ether, and intratracheal catheter were used by Dr. A. Ambler in administering positive pressure anesthesia. Two units of blood (1,000 cc.) were given during the operation. When the left lower lobe was freed from its bed, a large aberrant artery about $\frac{1}{2}$ cm. in diameter was found to enter the lower lobe, having originated from the lower thoracic aorta. It was doubly ligated and divided. No sequestration of the lobe was noted, and the bronchial system appeared normal. The patient received an additional unit of blood after the operation and, with penicillin and streptomycin therapy, made an uneventful recovery. She has had no major difficulty since. She is now pregnant again, and has expectorated a small amount of blood on two occasions recently (fig. 4).

Examination by Dr. E. D. Peasley of the removed left lower lobe and artery revealed enlarged lymph nodes at the hilar region, with reactive hyperplasia. The trabeculated surfaces of the two large cysts showed bronchial epithelium. In the adjacent tissue were numerous small cystic structures lined with columnar epithelium. The aberrant artery was traced into the lung substance, but apparently no anastomosis with the pulmonary artery was demonstrated. Much chronic inflammation was present.

The final diagnosis was congenital cystic disease of the lungs and lower accessory pulmonary artery syndrome.

Comment

The arterial anomaly of an aberrant vessel from the thoracic or abdominal aorta to the lungs has been described frequently since the first report by Huber⁽¹¹⁾ in 1777. The

first descriptions of the association of aberrant arteries with pulmonary sequestration or bronchopulmonary dissociation, with or without cystic disease, were made by McCotter⁽¹²⁾ in 1910, and Fischer⁽¹³⁾ in 1928.

Pryce⁽¹⁴⁾ in England has recently compiled a series of cases and advanced several theories as to the development of this unusual and interesting condition. Bruwer, Clagett, and McDonald⁽¹⁵⁾ have recently published an excellent article in the American literature and contributed several cases of their own. They call attention to the fact that over 26 cases have been recorded in the past 10 years.

At least 4 deaths from hemorrhage have been reported by surgeons who inadvertently opened an aberrant artery in performing major surgery for cystic disease and other pulmonary abnormality. Thus the importance of recognizing this possibility whenever the thoracic surgeon is dissecting pulmonary tissue free from the thoracic wall during lobectomy or pneumonectomy is obvious.

In the case herein reported, there was apparently no pulmonary sequestration. Three possibilities are cited by Pryce: (1) abnormal artery to normally connected lung; (2) abnormal artery to sequestered mass and adjacent normal lung; (3) abnormal artery

confined to sequestered mass. The case reported apparently belonged to group one. Pryce also calls attention to the fact that the aberrant arteries, instead of being small and muscular as are bronchial arteries, are usually large and have the elastic structure of pulmonary arteries. They also may show atherosclerotic changes earlier than do pulmonary arteries, possibly because they are subjected to the higher systemic blood pressure. There may be variation in the arterial structure, depending upon which of the three types of abnormality is present.

Bruwer and others⁽¹⁵⁾ state that with bronchopulmonary sequestration the bronchial system in the sequestered lung may not communicate with the normal bronchial tree, and thus cyst formation or bronchiectasis may result. In the case reported here, the cysts were in no way communicating with the normal bronchial tree, but the bronchial system in the lobe itself apparently was normally connected.

Pryce⁽¹⁴⁾ discusses three theories concerning the development of these anomalies:

1. The accessory theory (Eppinger⁽¹⁶⁾) of an additional embryonic lung bud
2. The fraction theory, which regards the ectopic mass as a detached part of the developing lung
3. The theory, held by Pryce⁽¹⁴⁾, that an abnormal pulmonary artery from the primitive splanchnic plexus "captures" one or more tips of the developing pulmonary tree and, by rotation traction, separates it from the major pulmonary mass. Reference is again made to the original articles by Pryce who discusses the subject in great detail.

Summary

1. A classification of pulmonary cysts, both congenital and acquired, is presented.
2. A case of congenital cystic disease of the lung associated with a large aberrant pulmonary artery from the aorta is reported. In the past decade similar cases have been found in significant numbers by thoracic surgeons.
3. Leading theories of the genesis of this condition are briefly discussed.

Conclusions

1. A clearer concept of cystic disease of the lungs may be achieved by classifying the congenital cysts as to the temporal origin in

embryonic development, and as to etiologic agents in acquired cysts.

2. Lower accessory pulmonary artery, with or without intralobar sequestration, should be considered in any differential diagnosis of congenital cystic disease of the lungs. Appropriate caution should be employed by alert thoracic surgeons in dealing with this potentially hazardous situation.

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Physical signs may be absent with early activity or with indolent or deep-seated tuberculous lesions. Tumors, cysts, and deep-seated abscesses may give no significant physical signs. Roentgen examination usually discloses more extensive disease than has been expected from other methods of examination. It is the only method by which the diagnosis of miliary tuberculosis can be made, since these tiny parenchymal lesions produce no distinctive clinical signs.

Sputum tests, a positive tuberculin test, gastric washings, and serial X-rays studies will usually establish or exclude the diagnosis. One should never make the diagnosis from roentgenologic findings alone, no matter how "typical" the shadows appear. Am. Acad. General Prac., F. Kenneth Albrecht, M.D., April, 1950.

Histoplasmosis must be taken into account in all routine x-ray surveys of population and differentiated from tuberculosis despite superficial similarities. Carefully controlled studies of the etiology of histoplasmosis in relation to conditions that vary geographically are very much needed.—G. Arnold Cronk, M.D., N.Y.S. J. of Medicine, August 15, 1951.

OCULAR PROBLEMS OF INTEREST TO THE GENERAL PRACTITIONER

WINSTON ROBERTS, M.D.

WINSTON-SALEM

Some common ocular conditions are still regarded with some confusion and frequently handled by somewhat antiquated concepts. These problems will be dealt with, in a roughly chronological order, from the standpoint of the general practitioner, who usually sees the patient first.

Dacryocystitis

One of the more common ocular complaints in infancy is dacryocystitis, which usually results from blockage of the nasolacrimal duct, either by failure of the duct to open completely in its fetal development, or by occlusion of the duct by a mucus or epithelial plug. The picture of persistent weeping, a stubborn mucoid or mucopurulent discharge, and perhaps repeated episodes of localized cellulitis or even abscess formation is well known. In the past it has been common to handle these cases largely by watchful waiting, in the hope that the ducts would in time open up and drain, thus clearing the chronic infection spontaneously, as many of them do. However, many other infants were left with permanent strictures of the nasolacrimal duct, besides having suffered the prolonged nuisance of a chronically infected conjunctival sac, spilling of tears, and perhaps recurrent abscesses.

We now know that this condition is handled much better by early intervention. If the weeping and discharge continue into the second or third month, the lacrimal passage should be irrigated and opened by probing. In this early age group, this procedure can readily be done by wrapping the baby, instilling a few drops of topical anesthesia, and then passing a lacrimal cannula through the punctum and canaliculus into the lacrimal sac, washing out all discharge, and finally passing it through the nasolacrimal duct into the nose. It is seldom necessary to repeat the procedure more than twice in order to give permanent patency to the duct, and relief of the distressing symptoms is dramatic and lasting.

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From the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.

Strabismus

Another of the more common serious ocular disturbances in children is strabismus, or squint. It is distressing to see how frequently anything approaching ideal results in the treatment of squints is missed because of the lack of opportunity or disinclination to attack the problem at the age when it can be best handled. I am convinced that ideal results can best be attained when treatment is coordinated with the child's normal physiologic development in ocular skills and abilities, particularly those involving binocular function. It is well known that these abilities develop primarily in the first three or four years of life, the eye-to-brain pathways being established in the first year or two, and the impulses for binocular cooperation developing particularly in the third and fourth years.

The treatment of squints in children has three chief aims: (1) to make sure that the child will see well out of each eye—that is, that he will have no amblyopia or functional blindness from failure to use his commonly deviated eye; (2) to make sure that the eyes are cosmetically straight so that he will not have to bear the stigma of appearing cross-eyed; and (3)—the most desirable and difficult goal to attain—to give the child the benefit of binocular cooperation—that is, fusion and possibly binocular stereopsis or depth perception.

Since we prefer to manage the complications of squints by prevention, or by early treatment before the complications become well established, we like to see the child with a congenital squint by his first birthday. At that time we can make him use the eye which he is deviating by covering the eye which is normally used for fixation, thereby avoiding or overcoming functional blindness from disuse. When fixation is equally well established in both eyes, the occluder can be alternated between the two.

If the squint does not appear until somewhere near the second birthday or later, it will usually have a large accommodative or focusing component, and glasses can be expected to help or cure it. Consequently, if we can see these children soon after the onset of their squint and correct the refractive error which is leading to the excessive focusing effort, with its accompanying convergence associated with the developing accommodation-convergence reflex, we may abort

the squint or reduce it greatly and make further treatment much simpler.

If the child is to develop normal binocular impulses which permit fusion of the images in the two eyes, it is obvious that his eyes must be placed in a position where the images of the objects fixed fall on, or very nearly on, the macula in each eye. He must be given an "opportunity for fusion," and this opportunity demands that his eyes be placed in a straight or nearly straight position during the period when he normally would establish fusion. Consequently, I believe that surgery should be done early.

If the squint has been present from birth, any amblyopia that may be present should be overcome first and the squint then surgically treated as soon as the child can safely stand a general anesthetic—that is, at 16 or 18 months old, or certainly by the second birthday. Surgery should also be done in the accommodative or refractive group just as soon as we have determined how much of the squint can be corrected by adequate cycloplegic refraction plus treatment of the amblyopia, so that the child can be given the opportunity for fusion in the period when he normally develops it. Straightening the eyes even approximately during this period when the child is normally acquiring binocular cooperation, may remove the need for further fusional training and orthoptic measures. If he has any fusion impulse at all, he will receive in the everyday use of his eyes better fusional training than any exercises we can prescribe. Thus we can achieve the second and third goals of therapy—to make the eyes cosmetically straight and give binocular vision—in many instances by the single procedure of placing his eyes in as nearly a straight position as is surgically possible to achieve, if the timing of the operation is coordinated with the physiologic development of the child.

General practitioners who see most of these children in their early years can help most by getting them to the ophthalmologist during this critical period when we can hope to achieve normal function rather than delaying, perhaps until their school years, when we can hope only to achieve cosmetic improvement, and that with more difficulty than is encountered in young children.

Ocular Infections

Blepharitis

Certainly no infection of the eye is more

common or more commonly neglected than blepharitis, which in its more severe forms is often called granulated eyelids. This condition, which is approximately as prevalent as athlete's foot and dandruff, is of very real importance. The margin of the lid not only may become scarred, but may also become the repository of a chronic infection which can lead to a persistent conjunctivitis and even corneal ulceration.

The most common causative agents are the *Staphylococcus aureus*, which produces little pustules and crusted ulcers, and a seborrheic infection which is believed to be due to *Pityrosporum ovale*, and which produces an oily scale on the lid margin. Long continued use of ophthalmic ointments of sodium sulfacetamide, or possibly Chloromycetin or aureomycin, will usually clear up the staphylococcus, although milking of the glands may be necessary if the infection is deep within the meibomian glands. For seborrhea, ointments containing the commonly used anti-seborrheics in weak concentrations, perhaps one-third to one-half that used on the skin elsewhere, are also effective.

Conjunctivitis

I believe that, in general, solutions are better than ointments for the treatment of conjunctivitis, since they have a greater irrigating and cleansing effect and are less likely to cause irritation. At this time I favor a 30 per cent solution of sodium sulfacetamide. In the near future Chloromycetin solution will be available, apparently an even better drug in some ways. I strongly advise against using penicillin for common mild attacks of conjunctivitis, although it is effective in a large number of cases. The extremely high incidence of sensitivity reactions from penicillin used locally in the eye makes it seem decidedly unwise to risk sensitizing the individual to a drug which may later be life-saving, when equally effective, relatively non-sensitizing drugs are available. Lastly, if the conjunctivitis presents a particularly severe and purulent picture or persists longer than a few days, I think it is advisable to take cultures and perhaps refer the patient to an ophthalmologist for more extensive treatment.

Glaucoma

I have the feeling that when the term "glaucoma" is used, medical practitioners usually visualize acute congestive glaucoma, with its usual picture of severe pain and

headache, a red eye, a hazy cornea, frequently a dilated pupil, and rapid loss of vision. Certainly this represents one of the gravest ocular emergencies, since, unless the elevated intraocular pressure is controlled within a relatively few hours, vision may be tremendously and permanently reduced.

For the general practitioner, nothing about acute congestive glaucoma is as important as a high index of suspicion, particularly in any case of severe headache or gastrointestinal upset with headache and prostration, for which no good explanations can be found. Secondly, it is essential to keep in mind the commonly confusing differential diagnosis between acute congestive glaucoma and acute iritis. Iritis may present a strikingly similar picture, including a red eye, rather severe pain and headache, and rapid loss of vision, and indeed a secondary rise in the intraocular pressure during its acute phase. The extreme importance of this differential diagnosis lies in the diametrically opposed drug therapy for the two conditions. Glaucoma, of course, calls for the use of miotics, whereas iritis demands the use of mydriatics, particularly atropine. Certainly nothing worse could be done for acute congestive glaucoma than to instill atropine into the eye. This will dilate the pupil still further and further block the drainage from the chamber angle, thereby converting an already difficult problem into a virtually uncontrollable attack. Consequently, I wish to emphasize that wherever there is a possibility of confusing the two, it is far better to do nothing other than sedating the patient until he can receive attention from an ophthalmologist than it is to use the wrong drug. Let me emphasize also that procrastination can be fatal in acute congestive glaucoma, because vision can be totally and permanently lost in less than 48 hours if the tension rises to great heights without control.

Chronic glaucoma presents an entirely different picture. It is a far more frequent and less dramatic condition, and, because of its insidious nature, is rarely diagnosed until it is relatively far advanced. Chronic glaucoma is most often characterized by a relatively slight elevation of the tension above the norm, by a pathologic undermined cupping of the optic disk, and by a characteristic loss of visual field. Early diagnosis is essential for satisfactory control and for the prevention of the irreversible loss of vision. Early diagnosis can be made only if physicians are

constantly on the watch for signs of the disorder, especially suspicious-looking cupping of the optic disc on ophthalmoscopic examinations. Since it is primarily a disease of the older age group, and one which usually does not manifest itself until relatively late in its course, early diagnosis depends upon periodic examination of the eye by an ophthalmologist who can check the tension and visual fields in suspicious cases, or by a physician who can refer such cases to an ophthalmologist for study. The grave importance of the problem is emphasized by the fact that chronic glaucoma is probably still the number one cause of adult blindness in this country.

Cataracts

It is well known that cataracts are simply lenses which have lost their transparency, usually in older people, but occasionally in young adults or in children. For many years it was necessary to permit the cataracts to mature or ripen, which simply meant letting them become totally opaque before undertaking surgery. With our modern surgical technique for intracapsular extraction, however, this delay is no longer necessary, and indeed is contraindicated. It is my feeling that in general the proper time for extraction is reached when the patient begins to find it difficult to read. Extraction of the cataract by the intracapsular method is, if anything, easier if the lens is not completely mature, and, in addition, the patient is spared a period of months or even years of near-blindness. Incidentally, we still have no medical treatment for cataracts which is of any proved or even strongly suggestive value.

Conclusion

It is only with the help of those who see the mass of patients early in the course of their ocular disorders that ophthalmologists can hope to offer ideal treatment at the ideal time.

New Form of Theominol Has Less Sedative Effect

As a companion product to Theominol, the vasodilator antispasmodic drug, a new preparation called Theominol M, designed to produce less sedation, has now been made available, it was announced by Dr. Theodore G. Klumpp, president of Winthrop-Stearns, Inc. Containing less than half as much Luminal as the original product, Theominol M is especially suitable in the treatment of hypertension cases where minimal sedation is desired.

THE INCIDENCE OF POSTOPERATIVE COMPLICATIONS IN ANORECTAL SURGERY

*A Review of 500 Cases**

B. RICHARD JACKSON, M.D.

RALEIGH

In the practice of anorectal surgery, certain postoperative complications though not frequent, occur from time to time, and it is of interest and importance to recognize their incidence.

The purpose of this presentation is to show the incidence of the common postoperative complications in a review of the histories of 500 consecutive cases of anorectal surgery.

In this series, multiple procedures were often performed on the same patient. It is not unusual to find patients having fissure and hemorrhoids, hemorrhoids and fistula, cryptitis and papillitis, or any other combination of rectal disorders and diseases. Malignant lesions were not included (table 1).

Routine Management of Anorectal Cases

It would be of considerable value to compare this series with a like number of cases performed under a different routine of management. Because there can be no basis for comparing the incidence of complications in anorectal cases unless the surgical methods of treatment are known, the routine management of this series of cases will be briefly described.

All patients were operated on in the hospital, and with the exception of one operation that was performed with the use of local infiltration anesthesia, all patients were anesthetized by regional block, intravenous, or inhalation methods. Inhalation anesthesia was reserved for children, or, in the form of nitrous oxide, used as a supplement to Sodium Pentothal. The large majority of patients were anesthetized by regional blocks, either saddle-block spinal, or lumbar or caudal epidural blocks.

Local infiltration of 5 to 10 cc. of an anesthetic in oil (Nupercainal), was used in 477 cases; it was omitted in cases of perirectal abscesses, in children under 10 years of age, and in 2 cases of rectal polyps where no

other pathologic condition was treated. Care was taken not to pool the solution, or to inject it into the skin.

Preoperative care: The patient is admitted to the hospital on the day before the operation. A complete history and physical examination is obtained and the necessary laboratory work performed. He is allowed his choice of food for the evening meal. At bedtime and early the next morning, he is given cleansing tap water enemas. He is allowed tea and toast for breakfast; the operation is performed in the early afternoon. Two hours prior to surgery he is given 0.1 Gm., (1.5 grains) of Seconal; one hour later the dose is repeated and 0.45 mg. (1/150 grain) of atropine is administered. The pre-anesthetic doses are adjusted for children and older patients.

Operative technique

Hemorrhoids are excised by Bacon's clamp and suture method. Fissures and papillas are completely excised, either by sharp or electrodissection. Fistulas are completely excised around a malleable steel probe, and left wide open. Deepened and infected anal crypts are excised over crypt hooks. Pruritus is treated by clover leaf excisions and undercutting the skin bridges. Rectal polyps are excised with snares, and the base fulgurated. Abscesses are incised and unroofed by excision. Routine suture material used for hemostasis of vessels in all cases is 0 or 00 plain catgut, and surface bleeding is controlled with the use of electrocoagulation. A single layer of absorbable hemostatic gauze (Oxycel) is applied loosely to all areas included in the operation. It is also used to line the undercut skin bridges in the clover leaf operation. No packs, drains, or pressure dressings are used.

Postoperative care

Following surgery, the patient is returned to his room, where he remains in bed until after his evening meal which is served usually about 6 p.m. This meal consists of clear liquids. He is then encouraged to be out of bed, preferably walking, until 9 p.m. It is my feeling that active ambulation aids in the more rapid absorption of the oil anesthetic. This belief is strengthened by the fact that very few patients require more than aspirin for analgesia.

For those patients who complain of sleepiness, lightheadedness or nausea, when not

Read before the Piedmont Proctologic Society, Asheville, North Carolina, August 25, 1951.

*The operations were performed at Rex Hospital, Raleigh, North Carolina, on private patients of the author.

Table 1
Classification of Cases

Diagnosis	Age Incidence (Years)									Total
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	
Hemorrhoids	0	2	54	113	111	62	23	6	0	371
Fissure	8	1	22	37	32	16	8	0	1	125
Cryptitis	1	1	42	54	43	24	9	0	2	176
Papillitis	0	1	26	34	33	12	3	1	1	111
Fistula	0	0	14	17	23	8	3	0	0	65
Pruritus	0	0	7	12	21	9	4	0	0	53
Polyps	3	0	1	4	5	8	1	0	0	22
Abscess	0	0	1	3	5	1	0	0	0	10
Stenosis	0	0	1	1	1	0	0	0	0	3

Table 2
Incidence of Complications

Complication	Age Incidence (Years)								Total	Per cent
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80		
Impaction	0	0	3	7	4	2	2	3	21	4.2
Hemorrhage	0	0	3	1	1	5	1	0	11	2.2
Stenosis	0	0	2	2	3	1	1	0	9	1.8
Abscess	0	0	0	1	2	0	0	0	3	.6
Cellulitis	0	0	0	2	1	1	0	0	4	.8
Fissure	0	0	1	0	0	1	0	0	2	.4
Prolonged healing	0	0	0	0	1	0	0	0	1	.2

contraindicated, I have prescribed 5 to 10 mg. of Dexedrine at 6 p.m. This drug has given them a general pick-up without interfering with restful sleep after a dose of Seconal, .1 Gm. (1.5 grains) at bedtime. Occasionally the dose of Seconal is repeated, if necessary.

The next day all patients are kept out of bed, started on warm tap water sitz baths every three hours, and discharged from the hospital that afternoon on the first postoperative day. The patients are given type-written instructions which are read to them before leaving the hospital. They are advised to be up and about, to eat regular meals, and not to restrict their diet. The sitz baths are continued at home every three hours, and mineral oil, $\frac{1}{2}$ ounce, is taken each night at bedtime for three successive nights. The instructions explain the use of cotton dressings, which are applied by the patient and changed at frequent intervals to keep the anus dry.

All patients are seen at the office for the first postoperative visit on the third or fourth postoperative day. The large majority of patients have had a bowel movement, and for those who have not, a mild laxative is prescribed, usually $\frac{1}{2}$ ounce of Milk of Magnesia. The patients are examined, and a well lubricated finger is slipped into the anal canal. The patients are told to make an attempt to move the bowels each day, pre-

ferably in the morning after breakfast, and to continue the sitz baths at the rate of three or four times per day.

Depending upon the findings at the first visit, the succeeding visits are determined. All patients are seen at least once a week for four to six weeks, and in most cases, they are seen two or three times a week for the first two weeks. On each office visit the patient is carefully examined and given assurance of his progress. After four to six weeks the patient is asked to return in one month for a final check-up.

Complications

Disregarding complications due to general systemic diseases and anesthesia, the common postoperative complications are fecal impaction, hemorrhage, stenosis, perirectal abscess, cellulitis, fissure, and prolonged wound healing (table 2). Phlebitis, embolic phenomena, and atelectasis were not seen in this series, and, I believe, they occur only in very rare instances.

Fecal impaction

Fecal impaction was the most common complication encountered. While of considerable discomfort and annoyance to the patient, in no case was it considered a serious or dangerous situation.

Of the 21 patients (4.2 per cent), only 2 required digital extraction; both extractions were performed with the use of perianal lo-

cal infiltration of 1 per cent Novocain. All other patients expelled impactions after using mineral oil, saline laxatives, and enemas (either warm mineral oil retention or warm tap water). In no case did the expulsion of the impaction cause hemorrhage. In the 2 cases of digital extraction, conservative measures, including one-quarter strength hydrogen peroxide retention enemas, failed to give the proper relief. Impaction did not occur in any cases except where hemorrhoidectomy was part of the surgical procedure. One case occurred in the first week, on the third postoperative day; one occurred in the fifth postoperative week, and all other cases occurred in the second and third weeks.

Hemorrhage

Hemorrhage was the most serious complication, and in all instances required immediate treatment. All hemorrhages in this series occurred between the seventh and twelfth postoperative days. Eleven patients (2.2 per cent) were treated for hemorrhage. It has been my practice to warn the patients on their first postoperative visit that they can expect to have some bleeding the second week, but not to become concerned unless it is profuse or persistent.

All patients having hemorrhage are treated either at the hospital or the office. Little or nothing can be accomplished in the home. Prerequisites in the treatment of rectal hemorrhage are good lights, trained assistants, the ready availability of necessary instruments, and usually anesthesia.

The anorectum should be cleared of all blood, and the bleeding point identified. It is my conviction that when this is accomplished, the bleeding point should be ligated. If a vessel is securely tied, concern is ended for both the patient and the surgeon. With the use of various types of packs, there is always some uncertainty. Packs have to be removed usually in about 48 hours, which is another uncomfortable or painful experience for the patient, and then, no matter how carefully the pack is removed, there may be a recurrence of bleeding.

While shock was not attendant in any of these cases, 6 patients were given blood transfusions. Following hemorrhage, all patients were given prescriptions for ferrous sulfate, to be taken usually for about three weeks.

As might be expected, the incidence of hemorrhage was higher in the older patients.

Stenosis

I believe that stenosis following anorectal surgery is primarily due to faulty surgical technique. It is the most embarrassing complication seen by the surgeon, and the patient is in constant distress until it is relieved. All cases require further operative treatment. Finger dilatations have very little permanent value once stenosis has developed. I think that careful postoperative care, including frequent finger dilatations, will in some instances prevent this condition, but it is apparent early in the postoperative course of many of these cases that stenosis is inevitable.

Patients with stenosis complain that the rectum is too tight and that they are forced to strain in order to have a bowel movement. As healing with stenosis progresses, they complain of constipation or small stools and a feeling of incomplete evacuation.

Nine patients in this series, representing an incidence of 1.8 per cent, developed anal stenosis. Five were operated on for pruritus ani and the clover-leaf operation performed. Three patients were operated on for hemorrhoids, and one patient for hemorrhoids and horseshoe fistula. It is readily apparent that the incidence of stenosis is much higher following the clover-leaf operation than after any other procedure.

Three patients were dilated under local anesthesia in the office. Four patients were operated on in the hospital and the stenosis relieved by multiple radial incisions through the scar tissue. Daily finger dilatations were done postoperatively in these 7 cases, and all wounds healed with the restoration of good function. Two patients refused further treatment.

Abscess and cellulitis

These two complications should be grouped together because they both represent infection that is usually due to operative technique. In 3 patients (0.6 per cent) perirectal abscesses developed, and in 4 patients (0.8 per cent), cellulitis developed. I feel that in each case of cellulitis undoubtedly an abscess would have developed had it not been for the use of antibiotics. The incidence of infection, which would include both abscesses and cellulitis, would then run about 1.4 per cent.

I feel reasonably sure that in each of these cases these complications developed only because an oil anesthetic was used, and the

solution was probably pooled within the tissues. Unlike the perirectal abscesses seen in the early development of fistula-in-ano, these cases were marked by localized, fluctuant, painful swelling, without the high degree of temperature and chills seen in the former.

All abscesses were incised in the office without anesthesia, and all were resolved without demonstrable fistula. The 4 cases of cellulitis were treated with 250 mg. of aureomycin, given every six hours, and warm sitz baths, for five to seven days. In one case, where the cellulitis had cleared after six days of aureomycin therapy, there was a recurrence of induration in four days after the drug was discontinued, and the patient was given a second course of treatment for one week. His symptoms have not recurred. All cases of abscess and cellulitis occurred in the first week following operation.

Fissure

The incidence of fissure following rectal surgery, where there is no degree of stenosis, is a complication for which I can give no reason. In 2 patients in this series fissure developed and required operation. Preoperatively and at operation, the diagnosis of fissure was not made, and I do not believe that in either case fissure was present. Both patients were operated on for hemorrhoids, the operative wounds healed well, and in both cases fissure developed in the posterior midline approximately five weeks after surgery. In spite of conservative measures, healing did not take place in either case until after excision of the fissure.

Prolonged or delayed wound healing

The large majority of operative rectal wounds are well healed in six to eight weeks. In very occasional instances, wound healing may require as long as three months. Most often, the patient has undergone extensive excision of the perianal skin, as in the cloverleaf operation for pruritus. Any anorectal wound requiring more than three months for complete healing should be classified—arbitrarily, on my part—as a complication.

One naturally expects slower wound healing in patients with poorly controlled diabetes, inadequate nutritional states, and infections, either local or general; but occasionally we see a wound that heals slowly where none of the aforementioned factors exist, and healing is retarded for no explainable cause. In anorectal surgery, this occurs

most commonly after excision of fissure. How many specialists in proctology have not seen or heard of such cases?

In the present group of cases, there was one patient demonstrating this complication. Operation was performed for fistula-in-ano in the anterior midline. Six weeks after operation, the wound had healed except for the superficial surface, which was covered with abundant and apparently healthy granulations. Four months after the operation, in spite of every effort to stimulate epitheliation, the wound remained the same. The patient was hospitalized, and the wound was excised. His postoperative course paralleled his previous postoperative course, and the second wound finally healed seven months after the second operation.

Other complications

There do occur other postoperative complications which were not seen in this series—edematous skin tags, persistent rectal discharge, and mucous prolapse. Pain is sometimes mentioned as a complication too, but I do not consider it as such unless it persists after healing, and then it is most likely a part of another complication.

Summary

The incidence of the most common postoperative complications in a review of 500 consecutive operations for benign anorectal lesions, with the routine management of these cases, is presented.

The complications included fecal impaction, hemorrhage, stenosis, abscess, cellulitis, fissure, and prolonged wound healing.

Winthrop-Stearns Opens North Carolina Sales Office

Winthrop-Stearns, Inc., manufacturer of medicinal preparations, has opened a new professional service office in Raleigh, North Carolina, to function as sales headquarters in the surrounding area, according to Joseph G. Noh, vice president and director of sales. This brings to 22 the number of Winthrop-Stearns division offices in this country.

Appointment of E. T. Meyers as manager of the Raleigh office was also announced by Mr. Noh. Mr. Meyers, formerly attached to the company's Baltimore division, will supervise a staff of 15 professional service representatives, who will call on physicians, drug stores and hospitals in the area on behalf of Winthrop-Stearns' medicinal preparations. The Raleigh office is located at 403 West Peace Street.

Territory covered by the new branch includes the entire state of North Carolina and parts of Virginia, West Virginia, and Tennessee.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

MAY, 1952

THE GLORY THAT WAS GREECE AND THE GRANDEUR THAT WAS ROME

One of the marvels of history is the re-
markable Greek civilization attained some
centuries before Christ. It is certain that
such a generally high standard of intelligence
and culture as Athens attained has never
been matched in the world's history, and it
is extremely doubtful if it will ever happen
again. Why did such a civilization perish?
A statement said to have been made by Soc-
rates in 353 B.C. gives the possible reason:

"Politicians have strained their ingenuity to dis-
cover new sources of public revenue. They have
continued the extraordinary taxes of war time into
peace time. A man now has to defend himself
against being rich as if it were the worst of crimes.
Athletics have become professionalized. Philosophy
has struggled to find some substitute for the Divine
commandments and the surveillance of God."

This statement should be pondered by all
our citizens, especially those entrusted with
our government. The fate of ancient Greece,
followed by the decline and fall of the great
Roman empire, reminds us of the pessimistic
statement of the historian Toynbee that a
study of history shows that 21 times when a
nation has become great enough to threaten
to rule the world a titanic struggle has taken
place with another strong nation or alliance
of nations, and one of the giants was knocked
out. Eventually, however, the victor was van-
quished and its civilization perished.

Gerald Johnson, in *This American Peo-
ple*⁽¹⁾, takes the more optimistic view that in
the United States "an important new factor
is present, and, because of its presence, those
prophets are in error who hold that we are
irrevocably doomed to follow the course of
all the fallen empires of history."

The new factor, Mr. Johnson says, is de-
scribed in the Declaration of Independence
in the phrase, "to secure these rights govern-
ments are instituted." "The rights referred
to are life, liberty, and the pursuit of happi-
ness, individual rights that cannot be con-
ferred on a business corporation, a religious
sect, or a political party." Because the United
States is the only great country the govern-
ment of which was founded for the specific
purpose of protecting the rights of the indi-
vidual, Mr. Johnson thinks that "it is reason-
able to suppose that it will make some dif-
ference and it is conceivable that it might
change the whole pattern."

Dean Clarence Manion, in his little classic
The Key to Peace, quotes the same sentences
from the Declaration of Independence and
says: "Here is the distilled essence of Ameri-
canism . . . The American Revolution turn-
ed directly away from collectivism and to-
ward the basic integrity of the individual
man."

With the history of the past to warn us,
it is no wonder that so many responsible
United States citizens are becoming greatly
concerned over the growing tendency of our
Federal government to usurp more and more
of the rights of the individual citizen. When
our President uses the subterfuge of a na-
tional emergency to seize and operate the
steel mills, and then tells a press conference
that he also has the right to control the press

and the radio, it is high time for the voters of our country to begin to ask of our candidates for office where they stand on the matter of protecting the rights of the individual. It is as true as trite that eternal vigilance is the price of liberty.

1. Johnson, G. W.: *This American People*, New York, Harper & Brothers, 1951.

* * *

HIGHWAYS MORE DEADLY THAN BATTLEFIELDS

An editorial in the *New York State Journal of Medicine* for April 1 is so full of food for thought that it is reprinted in its entirety, for the thoughtful consideration of readers of this journal.

* * *

As of September 4, 1951, there was recorded the millionth death, in Korea, from war causes among our military forces "since the first Minute Man fell in the Battle of Lexington on April 19, 1775. Between the dates of these two battle deaths there has elapsed a period of one hundred seventy-six years and nineteen weeks. During that time a state of war existed for about thirty years."¹ One is tempted to speculate, while on this grisly subject, concerning the relative inefficiency of military mayhem when contrasted with the motor vehicle as a weapon of destruction.

Less than fifty-two years ago, says the *Military Surgeon*, a New York man stepped off a street car into the path of an automobile and became the first fatality from such a cause. The millionth traffic death occurred on December 22, 1951, less than four months after the historic military fatality in Korea. For several recent years a round number of 100 deaths a day has been maintained, approximately 35,000 a year. In the period January to November, 1951, the rate per 100,000 from enemy action was 6.3, from motor vehicles 15.4.²

It is little consolation to note that since the end of World War II our population has increased by about 15,800,000 to a total of 155,800,000 at the end of 1951. If nothing effective is done to reduce the highway holocaust, the above increase simply indicates more potential victims and more senseless waste of human resources.

We are made aware by the National Safety

Council through its surveys that the principal causes of traffic accidents are speeding, drinking and driving, driving on the wrong side of the road, and failure to respect the right of way. Publication of the causes does little to reduce the occurrences. Highway bloodshed takes place as scattered incidents and does not arouse public indignation.

Education for safe driving may be of some use, but so far comparatively little has been done. The *Military Surgeon* proposes changing the mechanism of all our motor vehicles so that no greater speed than fifty miles an hour can be made. It is a suggestion with which we can agree, adding a further plea for moderation in the use of alcohol. Perhaps eventually we can reduce our highway fatalities at least to the level of our battlefield casualties.

1. *Mil. Surgeon* 11:135 (Feb.) 1952.

2. *Statist. Bull. Metrop. Life Insur. Co.*, December, 1951.

* * *

DIETETIC PONCE DE LEONS

Ponce de Leon, the Spaniard who died in 1621 at the age of 61, was born almost 500 years too soon. According to a full-page advertisement in the Book Review section of the *New York Times*, Ponce de Leon's ambition might have been realized had he lived to this good day. According to the advertisement, "By merely changing your diet to the sensible, enjoyable meals LELORD KORDEL describes in this new book, you can stop the aging process in its tracks—and reverse it!" (Italics in the advertisement.) The title of the book is, quite appropriately, *Eat and Grow Younger*.

It is possible that Mr. Lelord Kordel was stimulated to write his book by the success of Mr. Gayelord Hauser's *Look Younger, Live Longer*, which was for many months a best seller, and which was abstracted in the *Reader's Digest*. Mr. Hauser, according to the *Digest* foreword, is "author of half a dozen books on nutrition" and "an internationally known lecturer." Mr. Kordel is described in the *Times* advertisement as a "famous American authority on better health and nutrition" who "has worked in chemistry since his early youth."

The critical reader may wonder why neither of these famous nutrition experts is

listed in *Who's Who in America* or in the *American Men of Science*. The omission could really be a tribute to them both: by following the dietary advice they have given others, they may have retarded their own aging process so much that they can not yet be recognized as mature men. After all, there are few child prodigies in either *Who's Who* or *American Men of Science*.

* * *

COMPULSORY MEDICINE IN GREAT BRITAIN

To Dr. Hubert Royster this journal is indebted for a clipping from the Savannah, Georgia, *Morning News*, which offers an interesting comment on the British National Health Service. According to this article, British doctors have asked the government to fine those who do not take the pills prescribed for them. Their reasoning is that if it is the government's duty to protect the people's health, this duty is shirked if the government does not require the people to take the medicine prescribed for them in order to maintain their health—even though such regulation would interfere with the custom now said to be prevalent in Great Britain of trading prescriptions for lipstick or cosmetics or shaving cream or other booty.

The suggestion was made by the *Morning News* that the patient be required to take the pills back to the doctor's office and swallow them in his presence. An alternate plan suggested was to have a "pill-taker-watcher" to see that the medicine was swallowed according to directions.

The article ends with this logical conclusion:

"The one clear fact that stands out in this whole matter is that when people depend upon their government for their pills, they must swallow whatever pills the government gives them—and this is true not only in socialized medicine but in federal aid to education and in subsidized agriculture and in price control and in every other field in which the government takes over the responsibility which the people should retain in their own hands. Let's remember that fact."

* * *

A PSYCHIATRIST LOOKS AT MASS MEDICAL EDUCATION

In the *Pennsylvania Medical Journal* for April, Dr. Max H. Weinberg, who admits that he has been in medical practice for 40 years, looks at cancer propaganda from the viewpoint of the psychiatrist⁽¹⁾. His editorial

is based upon a study of 60 physicians admitted to two hospitals suffering from cancer⁽²⁾. Thirty of the 60 had metastases when admitted, and 13 were deemed inoperable when admitted.

Dr. Weinberg takes the stand that "a great deal of the effort that is being expended in so-called adult or mass education is as good as wasted . . . it merely tends to upset the unstable and the neurotic elements, whereas the sound elements of the population are inclined to 'take a chance' until they become seriously sick or handicapped."

Dr. Weinberg questions "whether the attempt at mass education . . . is not a waste of time, money, and effort, and whether it is not even an upsetting factor to at least the neurotic element in the community." He himself "is convinced that this is the case and the opinion is offered that physicians at least should not encourage so readily the formation of these organizations, let alone take active part in them."

Dr. Weinberg's views may be considered somewhat heretical nowadays—but doubtless many physicians who have had to spend much precious time in trying to convince numerous impressionable individuals that they do not have cancer will agree with him. A cancerphobia may be harder to eradicate than a cancer.

1. Weinberg, M. H.: Mass Medical Education is Useless, *Pennsylvania Medical Journal* 55:337 (April) 1952.
2. Byrd, B. F.: Fatal Pause in Diagnosis of Neoplastic Disease in Physician-Patient, *J.A.M.A.* 24:147 (Nov.) 1951.

* * *

DR. BRODIE C. NALLE

Dr. Brodie C. Nalle of Charlotte died on February 13 of coronary thrombosis, four and a half years after he had been disabled by cerebral thrombosis with hemiplegia. Dr. Nalle was a pioneer in group practice in North Carolina. After 16 years of general practice, he formed a partnership with three younger doctors, and from this the present Nalle clinic developed. Dr. Nalle began limiting his practice to Obstetrics and Gynecology, and was certified by the American Board in 1939. He was a leading spirit in building the Charlotte Memorial Hospital and was its first Chief of Staff. His memory will long be kept green in North Carolina medical circles.

PUBLIC RELATIONS

DIAGNOSING YOUR PUBLIC RELATIONS

LAWRENCE W. REMBER*

Sir William Osler said: "Let a patient talk long enough and he will give you the diagnosis."

This principle and approach is as soundly applicable to doctors in the diagnosis of their public relations ills as of their patients' bodily ills.

Doctors and their county medical societies have applied the Osler technique—which incidentally is also the Gallup, Roper, Robinson opinion survey technique—in Decatur (Illinois), Toledo (Ohio), Oakland (California), Utica (New York), and Charlotte (North Carolina). In doing so, they have come up with some very revealing answers as to how medical men rate with their patients.

The results of the five surveys mentioned teach many lessons to medical men and medical societies seeking to improve medical service and public relations in their own communities. The results apply even closer home—to doctors' own offices and their very personalities.

It is not necessary to go into the details of each of the five surveys to get the picture of where doctors stand in their public relations. The findings of the Decatur survey conducted by the American Medical Association at the request of the Macon County Medical Society have been so astonishingly borne out by the other surveys mentioned that a case history analysis of it suggests reasonably well what parts of your public relations clothes are in fine durable shape and what parts need mending or replacing.

The Charlotte study, sponsored by the Mecklenburg County Medical Society, will, of course, pinpoint the percentages more closely as they apply to North Carolina and will supply answers to certain questions not asked in the other surveys.

Here are what the Decatur survey shows are the public relations strengths and weaknesses of doctors, their medical societies, and the health care which patients are receiving:

The purpose of the first basic question area was to find out to what extent medical

care was available. The results showed that 91 per cent of the representative sample interviewed had a family doctor. Eighty-nine per cent had occasion to see their doctor at least once within the year. Seventy-five per cent had used a specialist. Of these, 39 per cent did so on the recommendation of their family doctor, and 36 per cent selected specialists of their own choice, or upon the recommendation of their friends, acquaintances, or by other means.

Eighty-eight per cent of the families expressing an opinion said that they were able to get a doctor to make a house call any time of the day or night when they needed him. Another 4 per cent said they could get him sometimes. There was a high correlation between those who said that they had a family doctor and those who said that they were able to get a doctor when they needed one.

The results showed that 63 per cent of the doctors respond to a home call immediately; and that 29 per cent respond within a short time. Only 8 per cent came after a long delay. One man enthusiastically said of his doctor: "He comes as soon as he can pull his pants over his pajamas."

The purpose of the second basic question area was to find out how the people felt about the cost of their medical, hospital, and drug care. Twenty-nine per cent of the people thought that surgical bills were too high, but only 12 per cent thought that office call and home call charges were too high. Forty-three and one-half per cent felt that hospital and drug bills were too high.

Forty-four per cent of those surveyed did not express an opinion on the cost of surgery, many saying that they had never had an operation. One out of every 14 persons volunteered the comment that he had never been hospitalized.

The purpose of the third basic question area was to find out what the people thought about the quality of their medical, surgical, hospital, and nursing care. Surgical care got over twice as many "excellent" votes as did hospital care or nursing care (51 to 21.5 per cent), and nearly half again as many as medical care ((51 to 38 per cent). Surgical care received 3 per cent "poor" votes, however, to none for medical care.

Hospital care and nursing care also fared the worst on the combined "fair" and "poor" votes, receiving almost three times as many as medical care (26.5 to 9 per cent), and over twice as many as surgical care (26.5 to

*Director of Public Relations Field Service, American Medical Association.

10 per cent). "Good" votes made up the remaining percentages.

The purpose of the fourth basic question area was to find out how many persons went out of town for medical care, and where, for what, and why. Seventy-nine per cent obtain their medical care entirely in Macon County. The 21 per cent who go elsewhere do so to see specialists or clinics primarily, and then only occasionally, as revealed by the "for what" and "why" answers.

Eighteen cities in all were named by the 63 out of 300 persons who reported that they had gone out of town for medical care. Twenty-five different ailments were mentioned as the cause for seeking medical care outside of Macon County. Eye problems were named by 17 persons, diagnosis by 12, surgery by 12, allergies by 4, clinical examinations by 3, and 8 other ailments were mentioned one or two times each.

Six primary reasons were given for going out of town. Nineteen said going elsewhere was recommended by their Macon County doctor; 15 said that they knew the out-of-town doctor; 10 said they wanted a double-check; 8 said that there were better facilities elsewhere; 5 said their family made the recommendation; and 4 said their friends recommended the out-of-town doctor or clinic.

The purpose of the fifth basic question area was to find out what patients thought of their experiences in doctors' offices. Ninety-six per cent of the people thought that the secretaries, nurses, and technicians in their doctors' offices were courteous, and many added the word "very." The waiting time in doctors' offices did not fare so well. Only 78 per cent said that it was reasonable, and a number of these said it was "reasonable" only because "With the large number of patients my doctor has, I don't know what he can do about it." A number voting "reasonable" commented that their doctor "made appointments."

Ninety-three per cent felt that their own doctor had a personal interest in them. They were less sure that other doctors had a personal interest in their patients as individuals and as people. One person expressed the high favorable statistic well when she said: "I wouldn't go to a doctor unless he was interested in me."

The purpose of the sixth basic question area was to find out how many people were

protected by prepaid hospital and medical care insurance, and whether they liked what they had. Eighty-one per cent of the families had some form of hospitalization insurance. A number of these also had some insurance for surgical bills and, to a much lesser degree, for medical bills. Eighty-four per cent of those having health insurance were satisfied with the policies they had.

Health bill protection consisted of non-profit and commercial group and individual policies for hospitalization and surgical care, health and accident policies, and veterans and church policies. Of the 19 per cent who did not have health policies, only 3/10 of 1 per cent did not know of their existence.

The purpose of the seventh basic question area was to find out what the people thought about doctors as citizens and as persons. Seventy-two per cent thought that their local doctors were much interested in making their community a better place to live. Twenty-two per cent said they were moderately interested. Six per cent said they were not interested.

Macon County citizens were asked: "Do you like doctors as people?" Ninety-four per cent said "yes." When the question "Would you like to change them?" was put, however, 29 per cent said they would do some remodeling. They mentioned most often that they would like doctors "less egotistical and independent," "less vague and more frank in explaining what was wrong," "less hurried in their examination and treatment," "less serious and less cold," "with more community interest," and "less autocratic."

The purpose of the eighth basic question area was to find out what the people knew about the Macon County Medical Society, and whether they felt favorably or unfavorably toward it as an organization. Almost two thirds, or 64 per cent, of those interviewed were unable to name a single public service, or community service activity, of the Macon County Medical Society with which they were familiar. Fifty-five per cent said that they had not heard of the society or did not know enough to express an opinion about it. One woman said: "I've just been here six months. I came from France." She knew as much, or as little, about the local county society as many who had lived in Decatur and surrounding area a lifetime.

Of the 45 per cent who had an opinion about the Macon County Society, 89 per cent

said they thought favorably of it. Three per cent had a mixed attitude. Eight per cent felt unfavorably.

The purpose of the ninth basic question area was to find out what the people knew about the American Medical Association, and whether they felt favorably or unfavorably toward it as an organization. Eighty-two per cent had heard about the A.M.A. Almost half, or 47 per cent, however, said that they did not know enough about it to form an opinion. Of those expressing an opinion, 82 per cent felt favorably toward the A.M.A. Three per cent said they were neutral. Fifteen per cent said they felt unfavorably.

Analyzing the nine basic question areas as a whole, the medical profession can take justifiable pride in the many favorable responses. Percentages of approval running from 94 per cent to 71 per cent on the questions dealing with medical care, doctor, and doctor organization constitute a fine endorsement which another profession or trade or industry—and certainly government—would find difficult to equal.

It would be most unfortunate, however, if the high endorsement which the people of Decatur and Macon County expressed on most of the questions in this survey were to blot out the needs and opportunities for improvement of medical service and medical public relations which this survey also reveals.

The statistical answers show that on the 16 questions dealing solely with medical and surgical care, doctors, and medical societies, percentages of disapproval ranged from 5.8 per cent to 29.1 per cent. Seven percentages of disapproval, by those expressing an opinion, were under 10 per cent; six were in the 10 to 20 per cent grouping; and three were in the more than 20 per cent classification.

This is what happens when percentages of disapproval, by those interviewed, are translated into the 70,000 adults who live in Macon County:

- 3,300 adults in the county feel that the doctors have no interest in their community.
- 5,000 adults can't get a doctor in the county to make a house call.
- 5,100 adults feel that the quality of surgical care is fair or poor, and 6,400 adults feel that the quality of medical care is only fair.
- 7,000 adults in the county think that home call charges are too high, and 7,700 believe that office call charges are too high.
- 11,200 adults in the county feel that surgical fees are too high.

- 15,400 adults in the county feel that waiting time in their doctors' offices is unreasonable.
- 19,000 adults would like to change doctors as people.
- 38,500 adults in the county do not know anything about the Macon County Medical Society, or do not know enough about it as a functioning organization, to express an opinion.

Although on every question the percentage of complaint was in the minority, it is this minority that can make the noise of a trumpet. It is this minority that needs to be reduced, and, if humanly possible, eliminated to the 4 per cent that surveyists have found gripe about everything.

Part of the job is one of public education. Part of the job is one of correction within the profession. These should go hand in hand for most effective results.

BULLETIN BOARD

JAMES WALKER MEMORIAL HOSPITAL POSTGRADUATE PROGRAM

The 1952-1953 program of year-round postgraduate medical education at James Walker Memorial Hospital in Wilmington has been announced. The program of visiting chiefs is designed to bring to the hospital and to the physicians of southeastern North Carolina eminent teachers and leaders in the medical profession. Licensed physicians and medical students are cordially invited to attend the daily conferences held from 5 to 6 p.m., and the clinicopathologic conference held each Wednesday at 7:30 p.m. No registration fee is required, but all physicians residing outside New Hanover County are requested to register at the information desk in the lobby of the James Memorial Hospital. The program is as follows:

Visiting Chiefs, 1952-1953

July 1-4, 1952

Dr. George T. Harrell, Professor of Internal Medicine and Director of the Department, Bowman Gray School of Medicine, Winston-Salem

August 19-22, 1952

Dr. R. L. Sanders, Professor of Surgery, University of Tennessee, College of Medicine, Memphis

September 9-12, 1952

Dr. Robert Lawson, Director of the Department of Pediatrics, Bowman Gray School of Medicine, Winston-Salem

October 7-10, 1952

Dr. Richard W. TeLinde, Professor of Gynecology, Johns Hopkins University, and Chief Gynecologist, Johns Hopkins Hospital, Baltimore

November 4-7, 1952

Dr. Charles C. Lund, Assistant Clinical Professor of Surgery, Harvard Medical School, Boston

December 2-5, 1952

Dr. Bradley L. Coley, Assistant Professor of Clinical Surgery, Cornell University Medical College, New York

January 6-9, 1953

Dr. Nathan A. Womack, Professor of Surgery, University of North Carolina School of Medicine, Chapel Hill

February 10-13, 1953

Dr. Charles H. Burnett, Professor of Medicine, University of North Carolina School of Medicine, Chapel Hill

March 3-6, 1953

Dr. Frederick L. Good, Surgeon-in-Chief, Gynecology and Obstetrics, Boston City Hospital, and Emeritus Professor of Obstetrics, Tufts College Medical School, Boston

April 7-10, 1953

Dr. Wilburt C. Davison, Dean, Duke University School of Medicine, Durham, and Professor of Pediatrics

May 5-8, 1953

Dr. Gordon P. McNeer, Associate Attending Surgeon, Memorial Hospital for the Treatment of Cancer and Allied Diseases, and Consultant in Gastroscopy at Roosevelt Hospital, New York

June 2-5, 1953

Dr. Austin I. Dodson, Professor of Urology, Medical College of Virginia, Richmond

Some 65 members of the Southern Neurosurgical Society held their annual meeting at Duke University, April 11-12.

The Neurosurgical Division of Duke Hospital and the Duke Medical School were host for the two day session on current clinical and research problems in the Duke Engineering College Auditorium. One of the important papers was a report on the modern treatment of gunshot wounds of the brain, as developed during the past year in the Korean campaign by Lt. Col. Arnold Meirowsky and Capt. Philip Dodge. An afternoon session was devoted to a symposium on glioblastoma multiforme, the most malignant brain tumor found in adults. Dr. Guy Odom, Duke neurosurgeon and vice president of the society, presented the results of 15 years of research studies. Among the highlights of the opening session was a presentation of modern motion picture photography in audio-visual techniques of teaching the anatomy of the nervous system by Dr. J. E. Markee, chairman of the Duke Anatomy Department. The Friday morning session also featured talks by Dr. Byron Bloor and Dr. Barnes Woodhall, Duke neurosurgeons, on vessel function in the monkey and in man.

The meeting was introduced by President Dr. Harry Wilkins of Oklahoma City and Dr. W. C. Davison, dean of the Duke Medical School.

* * *

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

The newest wing on the Duke Medical Research building has now been completed, and research teams and other medical units are moving in, according to an announcement by Dr. W. C. Davison, dean of the Duke medical school.

The new cancer and heart research wing, constructed with a \$200,000 grant from the National Cancer Institute of the U. S. Public Health Service, \$44,000 from the National Heart Institute of the U. S. Public Health Service, and \$150,000 from Duke University, completes the basic "H-shaped" structure of the building.

The research unit has just been named the "W. B. Bell Medical Research Building," in honor of the late W. B. Bell, president of the American Cyanamid Company. Bell, who died in 1950, was a trustee of the Duke Endowment.

Medical units to be transferred to the new area will be most of the Department of Biochemistry and Nutrition, except laboratory teaching facilities, and parts of the bacteriology group, including the Duke Fungus Registry.

Also making the move, after 22 years in the medical school, will be Dr. Davison. His new quarters will be located in the west part of the wing.

Other research projects now housed there include the Division of Experimental Surgery, virus research team, high altitude research chamber, work with endocrine studies, blood investigations, and several others.

The move is expected to be complete within the next few weeks. Meanwhile, allocations for space vacated in Duke Hospital and the Medical School are still indefinite. However, certain areas will be filled with psychiatry offices, hematology, x-ray, electrocardiography, and surgery.

"This move has been made primarily because of the building's mid-way location between Duke and the new Veterans Administration Hospital now under construction," Dean Davison said.

A group of Duke doctors, the Dean's Committee, will aid the professional program of the VA Hospital.

* * *

With almost 90,000 speech handicapped children in North Carolina's grade school population, Duke Hospital and the North Carolina Cerebral Palsy Hospital in Durham are conducting a double-barreled program to develop better treatment methods for patients and to establish a diagnostic and therapeutic training center for speech therapists in North Carolina.

Key figures of the joint program of the two hospitals are Dr. Murray Halfond, expert on speech disorders; Dr. Lenox D. Baker, medical director of the N.C.C.P. Hospital and Duke orthopedic surgeon; Dr. Leslie B. Hohman, Duke neuropsychiatrist and psychiatric consultant at the N.C.C.P. Hospital; and Dr. Kenneth L. Pickrell, Duke plastic surgeon.

From the medical recommendations of these doctors, the speech therapists at the two hospitals give some 500 treatments a month. In addition, many of the cases are treated by the doctors themselves. Many apparent speech problems turn out to be behavior problems which are treated in the Child Guidance Clinic at Duke.

* * *

Dr. Wilburt C. Davison, dean of the Duke University Medical School, Dr. Wingate M. Johnson, professor of clinical medicine at the Bowman Gray School of Medicine, and Dr. Julian M. Ruffin, professor of medicine at Duke, were among a group of the nation's outstanding medical figures who participated in all-day panel discussions of the President's Commission on the Health Needs of the Nation in Washington, D. C., April 8-10.

Dr. Davison and Dr. Johnson were in a round-table discussion on general medical practice, and Dr. Ruffin took part in a panel on the trend toward specialization in medicine.

The Commission, appointed by President Truman last December to study the immediate and long-range health needs of the American people, has already held a series of hearings on aid to medical education and local public health units.

* * *

The second class in premature infant care for public health and hospital nurses opened at the Duke University School of Nursing in April. This first North Carolina training center, sponsored by

the North Carolina Pediatric Society and administered by the State Board of Health, opened at Duke last October. The program is designed to help nurses meet the special needs of premature infants and their families in the hospital and in the home.

"There are now more than 8,000 premature infants born in North Carolina every year, and about 4,000 need care at special hospital centers," according to Dr. Robert J. Murphy, pediatric consultant to the State Board of Health.

The course at Duke again is necessarily limited to six nurses under the direction of Miss Eileen Kiernan, formerly of New York Hospital. However, because of demand, another class has been added to the schedule, to start at Duke June 2.

NORTH CAROLINA ALCOHOLIC REHABILITATION PROGRAM

Miss Jane Latham, president of the North Carolina Association of Caseworkers and member of the Mecklenburg County Public Welfare Department, will direct a seminar for North Carolina's Summer Studies on Facts About Alcohol to be held at Chapel Hill June 9-13.

Native of Greensboro and former resident of Leaksville, the Charlotte welfare worker is currently a member of the executive board of the American Association of Social Workers. She will lead the forum topic, "The Social Agency and the Problem of Alcoholism."

NEWS NOTES FROM THE NORTH CAROLINA TUBERCULOSIS ASSOCIATION

A team composed of four members of the N.C.T.A. staff has just completed a series of program planning institutes held in eight sections of the state: Greenville, Elizabeth City, Fayetteville, Hickory, Asheville, Albemarle, Durham, and Greensboro. The institutes were planned to bring together those persons and agencies in a community interested in tuberculosis control. The primary objective was to improve the local program through joint thinking and planning. Agencies represented in the sessions included health departments, welfare departments, local medical societies, extension services, schools, and state and local tuberculosis associations.

The institute register showed an attendance of 140 persons representing 40 counties of the state.

* * *

The first meeting of the newly formed Health Education Committee of the North Carolina Tuberculosis Association met in Raleigh on February 20. Mrs. Ruth R. Pretlow, chairman, pointed out that the purpose of the committee was "to study the ways and means of coordinating health education in the state, and to suggest ways in which the tuberculosis association could more effectively meet the needs of the state in health education."

EIGHTH DISTRICT MEDICAL SOCIETY

The Eighth District Medical Society met at the Jefferson Country Club, Greensboro, on April 10. Scientific papers were presented by the following physicians: Dr. C. H. Mauzy, Jr., Winston-Salem; Dr. Eulys R. Troxler, Greensboro; Dr. Felda Hightower, Winston-Salem; and Dr. J. W. Jolley, Elkin.

Two officials of the North Carolina State Medical Society addressed the meeting, Mr. James T. Barnes, executive secretary, speaking on business aspects of the society, and President Fred C. Hubbard on professional aspects of the organization.

FIFTH DISTRICT MEDICAL SOCIETY

The Fifth District Medical Society held its annual spring meeting at Southern Pines on March 27. Participating in the scientific program were Dr. Chris F. Siewers, Fayetteville; Dr. C. R. Stephen, Durham; Dr. H. Max Schiebel, Durham; and Dr. Jack D. Myers, Durham. Mr. Leland McKeithan, president of the North Carolina Bar Association, was speaker at the closing dinner session.

EDGEcombe-NASH MEDICAL SOCIETY

Dr. J. Street Brewer, president-elect of the North Carolina State Medical Society, was speaker at the April meeting of the Edgecombe-Nash Medical Society. He discussed the North Carolina State Society, the American Medical Association, and the service they render to the medical profession.

CATAWBA VALLEY MEDICAL SOCIETY

"Some Common Errors and Omissions in Obstetrics and Gynecology" was the subject of a talk by Dr. John M. Nokes, professor of obstetrics and gynecology, University of Virginia School of Medicine, at the recent meeting of the Catawba Valley Medical Society held at Hickory. A case report was presented by Dr. Caldwell and Dr. Aycock of the Catawba General Hospital Staff.

FORSYTH COUNTY MEDICAL SOCIETY

Dr. Frank B. Walsh of the Johns Hopkins University Wilmer Institute was speaker at the April meeting of the Forsyth County Medical Society held in Winston-Salem. His subject was "Some Recent Ophthalmological Contributions to the Diagnosis of Systemic Diseases."

SOUTHERN PEDIATRIC SEMINAR

The 1952 session of the Southern Pediatric Seminar will be held in Saluda from July 14 through July 26. This is the thirty-first annual session of this institution, which has become one of the outstanding postgraduate courses in pediatrics in the country. Following the plan which was put into effect last year, there will be an additional week (July 28 through August 2) devoted to the study of obstetric and gynecologic problems.

The seminar was established and is maintained for the benefit of the general practitioner. Outstanding teachers and clinicians from the various southern states come at their own expense to give lectures, clinics, clinicopathologic conferences, and demonstrations. The meetings are of an informal nature, and there is ample time to present special subjects and questions for discussion. Many of the physicians bring their wives and families with them and make the occasion a joint period of study and vacation.

The seminar course is fully accredited for postgraduate requirements in the Academy of General Practice.

Those desiring further information should write to Dr. D. L. Smith, Registrar, 187 Oakland Avenue, Spartanburg, South Carolina.

EMORY UNIVERSITY

Two postgraduate courses will be offered next fall by the Emory University School of Medicine, according to an announcement by Dr. Russell H. Oppenheimer, director of medical postgraduate education at Emory.

The courses are expected to attract about 100 physicians each. One, on general medicine and surgery, will run the week of October 6, and the other,

on cardiology, the week of October 20. The first is open to general practitioners in the region, and will be given by Emory in cooperation with the Medical Association of Georgia and the Georgia chapter of the American Academy of General Practice.

The cardiology course will be of interest to heart specialists throughout the country, Dr. Oppenheimer declared. Guest speakers scheduled are Dr. George E. Burch, professor of medicine, Tulane University Medical School; Dr. Richard Bing, professor of experimental medicine and clinical investigation, Medical College of Alabama; and Dr. Eugene Stead, professor of medicine, Duke University Medical School.

FIFTH AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

Three awards and three honorable mentions were presented to scientific exhibitors at the Fifth American Congress on Obstetrics and Gynecology in Cincinnati, March 31 through April 4, sponsored by the American Committee on Maternal Welfare.

First place was given to "Genital Cytology" by W. Kenneth Cuyler, Ph.D., Louise A. Kaufmann, B.A., and Bayard Carter, M.D., all of Duke University School of Medicine and Hospital, Durham, North Carolina. It consisted of smear slides correlated with the histologic findings as seen by the pathologist, using descriptive caption placards and 100 microscopes.

Proceedings of the Congress will be published in book form by C. V. Mosby Company by fall. Copies can be ordered from their office at 3207 Washington Boulevard, St. Louis 3, Missouri. Price will be about the same as the last volume, of the International and Fourth Congress.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY

Carl P. Huber, Indianapolis, took office as president and Robert A. Kimbrough, Jr., Philadelphia, was elected president-elect of the American Academy of Obstetrics and Gynecology at a meeting in Cincinnati April 1.

The group also elected Howard C. Stearns, Portland, Oregon, first vice president; E. Stewart Taylor, Denver, second vice president; and C. Paul Hodgkinson, Detroit, assistant secretary. They re-elected Ralph A. Reis, Chicago, secretary, and Herbert E. Schmitz, Chicago, treasurer.

Dr. Reis also was chosen to be editor of the Academy's new journal, which will be published monthly starting January 1, 1953.

The next annual meeting of the Academy will be held in the Palmer House, Chicago, December 15-17 of this year. Further information can be obtained by writing to Ralph A. Reis, Secretary, American Academy of Obstetrics and Gynecology, 116 South Michigan, Chicago 3, Illinois.

AMERICAN COMMITTEE ON MATERNAL WELFARE

Frederick H. Falls, M.D., Chicago, was elected president of the American Committee on Maternal Welfare at a meeting of directors and delegates from member organizations in Cincinnati April 3.

He succeeds Fred L. Adair, M.D., Maitland, Florida, who had been president since the American Committee was incorporated in 1934. Dr. Adair also was one of the founders and key figures of the Joint Committee on Maternal Welfare, formed in

1919, which eventually broadened into the present organization.

Bayard Carter, M.D., Durham, North Carolina, was reelected vice president. Ann Kirchner, R.N., Chicago, was elected secretary, and Francis Ford, M.D., Rochester, New York, treasurer.

INTERNATIONAL ACADEMY OF PROCTOLOGY

Annual Convention of the International Academy of Proctology

The International Academy of Proctology will hold its Fourth Annual Meeting in Chicago, June 6, 7, and 8, at the Edgewater Beach Hotel.

The first two days will be devoted to a Seminar presentation of papers relating to the colon and rectum. The entire day of June 8 will be devoted to a teaching film presentation of surgical techniques for diseases of the colon, rectum and anus.

All physicians are cordially invited, whether or not affiliated with the International Academy of Proctology. There will be no registration fee.

AMERICAN HEARING SOCIETY

The American Hearing Society, Washington, D. C., sponsor of National Hearing Week, May 4-10, works closely with federal and state rehabilitation programs in serving this nation's individuals whose hearing is below par. Expressive of this cooperation is the following statement from Miss Mary E. Switzer, Director, Office of Vocational Rehabilitation, Federal Security Agency:

"Thousands of Americans have surmounted the obstacle of hearing loss and are now leading productive, responsible, and happy lives. They are living testimony to the fact that the deaf and hard of hearing are fully as capable, talented, and effective as any other group of our citizens. Now, as never before, their talents and skills are needed in this country. They must not be lost to our productive strength simply because of misunderstandings about hearing loss or because we neglected to use our knowledge in conserving hearing."

SOCIETY FOR THE PREVENTION OF ASPHYXIAL DEATH, INC.

A patron of the Society for the Prevention of Asphyxial Death, Inc., interested in making the causes and prevention of asphyxia better known among physicians of North Carolina State, has kindly offered to donate a copy of *The Art of Resuscitation*, by Palual J. Flagg, M.D., to the first 100 physicians who become members of the Society following the release of this information in the *North Carolina Medical Journal*.

A reviewer for the *North Carolina Medical Journal* said of this book: "The most complete and lucid work on this subject which has ever appeared. The excellent presentation of the material makes this one of the most interesting books which the reviewer has had the privilege of reading. It should be required reading for all doctors."

The book lists for \$6.00. Volumes donated will be autographed by Dr. Flagg.

Physicians who wish to receive this autographed volume for their library are asked to apply for membership in the Society for the Prevention of Asphyxial Death, Inc., enclosing membership dues of \$5.00. Communications should be addressed to, Secretary, S.P.A.D., Inc., 2 East 63 Street, N. Y. 21, New York.

Dr. Chevalier Jackson in the preface to this book says, "To learn from this book means to save human lives."

COMMISSION ON CHRONIC ILLNESS

Thirteen thousand persons in 4,000 families in Baltimore, Maryland, will be surveyed and tested in a study of chronic disease and the needs of the chronically ill to be made there by the national Commission on Chronic Illness, under the direction of Dr. Dean W. Roberts. Dr. Roberts will assume his new duties as staff director of the Commission on July 1, and the Commission's office headquarters will be moved from Chicago to Baltimore at that time.

Dr. Roberts and the Commission staff will begin in Baltimore a series of studies, planned to cover several years, of medical services and facilities needed by the chronically ill. In addition to the field studies in Baltimore and Hunterdon County (New Jersey) the Commission will report on the status of state and local services and facilities for the chronically ill. Surveys are directed to general hospitals, state health departments, state medical societies, community welfare planning councils, nursing organizations, state welfare departments, and nursing homes.

ACADEMY-INTERNATIONAL OF MEDICINE

Editorial Assistants—Collaborators

A clearinghouse service on competent editorial assistants or collaborators to assist in the preparation of papers for meetings, publication, or clinical demonstrations is being established. Technicians qualified to assist in editing explanatory or sound tract material in conjunction with professional motion pictures are included. Information will be available to all members of the medical profession on request.

Please assist this NEW service by forwarding names and addresses of qualified collaborators to Academy-International of Medicine, 214 West Sixth St., Topeka, Kansas.

UNITED CEREBRAL PALSY

Nine significant phases of the treatment of cerebral palsy were discussed by eminent physicians and surgeons at the third symposium which was conducted by the Research Council of United Cerebral Palsy on Friday, March 28, at the Academy of Medicine, Cleveland.

The general theme of the symposium was "Appraisal of Current Methods of Treatment of Cerebral Palsy."

AIR RESEARCH AND DEVELOPMENT COMMAND

The United States Air Force has published a technical report containing the most complete and authentic information available on blood and its characteristics ever assembled.

The report, "Standard Values in Blood," promises to fill a long-felt need in the medical profession. Information for the report was contributed by more than 600 leading medical authorities throughout the world.

Edited by Dr. Errett C. Albritton, of the George Washington University Medical School, this Air Research and Development Command project was monitored for the Air Force by Dr. J. W. Heim of the Aero Medical Laboratory, Wright Air Development Center at Wright-Patterson Air Force Base. The report was prepared by the National Research Council under sponsorship of the Aero Medical Laboratory.

The Air Research and Development Command report was written to furnish a ready reference manual for use by Air Force medical officers, and also

is authorized for distribution to other government agencies. The public will be able to obtain copies from the Office of Technical Services, Department of Commerce, Washington, D. C.

DEPARTMENT OF THE ARMY

Two hundred and sixty-five officers of the Army Medical Service Reserve will be ordered into active military service in July, the Department of the Army announced recently. This is in addition to the original call up of 290 officers made in March.

Included in the new group are 232 physicians, 25 dentists, and 8 veterinarians. Quotas have been assigned to each of the six Army areas in the continental United States, as well as U. S. Army, Pacific, and U. S. Army Caribbean.

* * *

Appointment of 146 senior medical students for the Military Intern Program of the Army Medical Service was announced recently by Major General George E. Armstrong, Army Surgeon General.

The program, scheduled to get under way July 1, provides that medical students, upon graduation, can be commissioned as first lieutenants in the Medical Corps Reserve and serve their internships in Army hospitals.

* * *

Army medical research teams will begin protracted follow-up tests March 15 on the new anti-malarial drug, Primaquine, among 1,000 Korean returnees at four installations in this country, the Department of the Army has announced. The observations, to be made on volunteer subjects who were exposed to malaria in Korea but have no history of the disease, are designed to furnish conclusive proof of Primaquine's ability to prevent attacks of clinical malaria.

The tests are to be conducted under the supervision of Army Medical Research and Development Board chairman, Colonel John R. Wood, M. C., at Fort Dix, New Jersey; Fort Knox, Kentucky; Fort Benning, Georgia, and Camp Breckenridge, Kentucky.

Together with chloroquine, the malaria suppressant, Primaquine has been routinely administered to troops returning from Korea by water since December, 1951. Men selected for the new follow-up tests returned to this country before that time and, therefore, did not receive Primaquine.

Primaquine was first synthesized in 1945 by Dr. Robert Elderfield of Columbia University and later tested under the auspices of the Public Health Service at Christ Hospital, Cincinnati. Human toxicity studies and clinical investigations have been in progress among prisoner volunteers in Stateville Prison, Joliet, Illinois, by Dr. Alf S. Alving of the University of Chicago since 1948.

VETERANS ADMINISTRATION

The two top medical advisory groups to the Veterans Administration, consisting of 43 of the nation's outstanding medical, dental, nursing, and dietetic authorities, have voted "full confidence" in the VA medical program under the direction of Admiral Joel T. Boone, chief medical director.

The resolution was voted at the end of a two day joint conference of the Special Medical Advisory Group and of the Board of Chief Consultants. The meeting was held March 10 and 11, 1952, in Washington, D. C., to study the details and over-all operation of the VA medical program. It was the first joint conference held by these two groups.

The joint resolution states:

"The Special Medical Advisory Group and the

Board of Chief Consultants wish to convey to Admiral Joel T. Boone their appreciation of the highly effective manner in which he has carried out his responsibilities as Chief Medical Director of the Department of Medicine and Surgery, Veterans Administration, during the past year.

"The Special Medical Advisory Group and the Board of Chief Consultants wish to express their full confidence in Admiral Boone as Chief Medical Director and to assure him of their wholehearted support of the Veterans Administration Medical Program under his leadership."

* * *

The appointment of Dr. John C. Nunemaker to the position of Chief of the Research Division, Research and Education Service, Department of Medicine and Surgery, in Washington, D. C., was announced by Admiral Joel T. Boone, Chief Medical Director of Veterans Administration. Dr. Nunemaker took over his duties in March.

* * *

The appointment of Dr. Arthur F. Abt to the position of director, Radioisotope Unit, which is to be established in the Veterans Administration Hospital now nearing completion in Durham, North Carolina, was announced by Admiral Joel T. Boone, chief medical director. Dr. Abt has been engaged in the private practice of pediatrics in Chicago where he has been attending pediatrician, Sarah Morris Children's Hospital, Chicago, and consulting pediatrician at U. S. Naval Hospital, Great Lake, Illinois.

* * *

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FEDERAL SECURITY AGENCY

Public Health Service

Live births in the United States last year soared above 3,800,000 for the second time in history, and topped the 1950 birth total by more than 200,000, according to vital statistics released recently by the Public Health Service.

Moreover, the 1951 total may be an all-time high for the United States, the Service said.

The number of children born in 1951 was estimated at 3,833,000 as compared with the 3,818,000 born in 1947, the previous record year. Because of the small difference between the two figures, it is necessary to wait for final data for 1951 before determining whether 1951 is definitely the all-time high.

The annual birth rate for 1951, based on registered births alone, rose to 24.5 per thousand population, an increase of 4.3 per cent over 1950.

A fall in the infant mortality rate, which dropped for the fifteenth straight year, also helped to swell the 1951 addition to the infant population. Infant deaths last year occurred at the rate of 28.8 per thousand live births, contrasted with a rate of 47.4 in 1940 and 64.8 in 1930.

The over-all death rate, 9.7 per thousand population, showed virtually no change from 1950. The mortality level has now been below 10 deaths per thousand population for four years in a row.

(BULLETIN BOARD CONTINUED ON PAGE 268)

Lilly Reduces Penicillin Prices

Eli Lilly and Company of Indianapolis announced a substantial reduction in the price of penicillin on March 26, 1952. The reductions ranged from 10 to 38 per cent on various forms of the drug, with the average a healthy 25 per cent.

This is the second time in the last three months that Lilly's has lowered the price of penicillin.

Striking improvements in production methods are chiefly responsible for the continuing downward trend of prices. Little more than 10 years ago, penicillin cost about 80 times the price today. In addition, improved forms of the drug are 10 times as potent and last six times as long as the old product.

Eli Lilly and Company Aids Flood Victims

Eli Lilly and Company, in accordance with its long-established policy, is replacing all Lilly products in pharmacies and hospitals ravaged by the flood in the Missouri and Mississippi River Valleys. Lilly representatives in a dozen states, from Montana to Missouri, have been directed to make the replacement of flood-damaged Lilly pharmaceuticals and biologicals their first order of business. Eli Lilly and Company has been replacing stocks damaged by uninsurable hazards as far back as the 1906 San Francisco disaster.

Along with the replacement of stocks, the Lilly company maintains a reserve supply of typhoid vaccine and other biological products which is kept ready for fast shipment during disasters. The shipping personnel of the company stands by twenty-four hours a day.

As the flood waters recede, the replacement of normal stocks will be made as fast as drug stores, hospitals, and wholesale druggists reopen their doors. In the event of a threat of an epidemic, however, needed drugs are shipped directly to the affected area by the fastest possible means of transportation.

AUXILIARY

In Memoriam

MRS. MINNETTE CHAPMAN DUFFY
1882 — 1951

Our beloved member, Minnette Chapman Duffy, has been called from our midst by our Heavenly Father, to the Land of peace, love and beauty. She was born near Knoxville, Tennessee, February 20, 1882, and passed away in New Bern, October 1, 1951, after a prolonged illness. She was quiet, sincere, and was devoted to her church, her loved ones, and her friends.

Minnette was a wonderful citizen, and her memory will ever be a bright inspiration to our Auxiliary.

We, the members of the Auxiliary to the Craven County Medical Society, wish to express our sincere sympathy to her family and her many friends.

Therefore, be it resolved, that in appreciation of her consecrated life of devoted service, this tribute of love and respect, be entered in the records of this Auxiliary, and that a copy be sent to the North Carolina Medical Journal, and to the family.

RUTH H. BARKER—Past President
Mrs. C. B. Barker, 711 Broad St.,
New Bern, N. C.

MRS. J. B. WHITTINGTON

In January of 1952 the Auxiliary of the Forsyth County Medical Society suffered the loss of one of its members in the death of Mrs. J. B. Whittington of Winston-Salem. Mrs. Whittington was affectionately known by those closest to her as "Ma." She will long be remembered by the nurses and resident staff of City Memorial Hospital for her counseling. Her generous contribution of flowers at the hospital and, on occasion, for the medical auxiliary was a great help to these groups. Even during the long months of her last illness her kind thoughtfulness of those about her was still present.

To live in hearts we leave behind is not to die—it is the continuation of life. It is immortality.

MRS. BERTHA KAUFER DUFFY
1879 — 1952

We, the members of the Auxiliary to the Craven County Medical Society, wish to express our deep sense of loss in the passing of one of our most beloved members, Mrs. Bertha Kafer Duffy, who was born in Wormz, Germany, October 7, 1879, and who passed away in New Bern, January 28, 1952.

Bertha was quiet, sincere, and gentle in disposition, and was devoted to every interest of her church, her clubs, her loved ones, and her friends. Her strong Christian character and her life of splendid loving service inspire us to live better, more useful lives of devotion to our society, our church, and our Heavenly Father.

Our love and sympathy go out to her family and her many friends.

Therefore, be it resolved, that in appreciation of her consecrated life of devoted service, this tribute of love and respect, be entered in the records of this Auxiliary, and that a copy be sent to the North Carolina Medical Journal, and to the family.

MRS. C. S. BARKER, Past President
New Bern

BOOK REVIEWS

Rheumatic Diseases. By the Committee on Publications of the American Rheumatism Association, Charles H. Slocumb, M.D., Chairman. 449 pages. Price, \$12.00. Philadelphia: W. B. Saunders Company, 1952.

This new book presents a comprehensive, well integrated, up-to-date review of authoritative international opinion on the rheumatic diseases. The material has been prepared by the Committee on Publications of the American Rheumatism Association from papers and discussions given at the Seventh International Congress on Rheumatic Diseases.

This volume includes the current thought of 196 contributors on all phases of this group of diseases. The discussants review important fundamental studies related to etiology, pathologic physiology, and biochemistry; they present the natural history of each disease; they evaluate methods of diagnosis, treatment, and prevention; and they point out the importance of rehabilitation and speciality integration in the total program of patient care.

This book should be of value to any student of disease, as it crystallizes present opinion in a rapidly changing and incompletely understood area of medicine.

Surgical Practice of the Lahey Clinic. By Members of the Staff of the Lahey Clinic, Boston. 1014 pages, 784 illustrations. Price, \$15.00. Philadelphia and London: W. B. Saunders Company, 1951.

This volume dealing with the surgical practice of the Lahey Clinic is indirectly referred to by Dr. Frank H. Lahey as the second such volume. The publication is in reality an entirely new book and different from the first volume which was published ten years ago. Most of the publication is a compilation of recent articles by the staff members of the Lahey Clinic.

The results of clinical research at the Clinic, based on studious observation of pre-operative and post-operative care and relatively standardized operative procedures, pervade the work. That plan of presentation interests the practitioner of surgery, the teacher, and the clinical research investigator. Medical students and surgeons in training would find the work less valuable and would use it principally as a reference for special surgical techniques.

Improvements in handling many old problems in surgery are presented, and new techniques in medical therapy and surgery are discussed. The information gained from the wide experience of this large group of clinicians is a valuable contribution to the surgical literature, but it is not presented as a complete textbook on surgery.

Electroencephalography in Clinical Practice. By Robert S. Schwab, M.D., Director of the Brain Wave Laboratory, Massachusetts General Hospital, and Associate in Neurology, Harvard Medical School. 195 pages with 106 figures. Price, \$6.50. Philadelphia and London: W. B. Saunders Company, 1951.

This volume is an extremely brief summary of electroencephalography intended to present the basic principles of its use, the application of the technique, its assets, and its liabilities. Emphasis is put

on the validity of the results, the frequency with which positive or negative findings are to be anticipated in various conditions, and the advantages and limitations in each application.

The volume presents first the details of basic physiology underlying electroencephalography. This is followed by a section covering the characteristics of the normal electroencephalogram and the criteria of abnormalities. There is a section dealing with the findings in epilepsy in other neurologic and neurosurgical diseases, and in psychiatry. Finally, there is the discussion of the technique of recording, the organization of the laboratory, and the methods of interpretation of records. The book is well written, concise, and accurate. It is a useful introduction for anyone interested in learning the uses and applications of this new technique.

The Serpent-Wreathed Staff. By Alice Tisdale Hobart. 402 pages. Price, \$3.50. New York and Indianapolis: Bobbs-Merrill Company, Inc., 1951.

If Mrs. Alice Tisdale Hobart had managed to devise a suitable ending for her 402-page novel, *The Serpent-Wreathed Staff*, about 60 pages sooner than she did, a tolerant critic would be able to say that she had written a faulty but highly interesting story of human conflicts and loyalties. Unfortunately, however, the latter part of the book degenerates swiftly and recklessly into an amazing propaganda piece for national compulsory health insurance. The last 40 or 50 pages sound as if Mrs. Hobart knocked them out hastily at a desk piled high with pamphlets, speeches, and news releases handed out by Federal Security Administrator Oscar Ewing and the Committee for the Nation's Health.

This uncraftermanlike abuse of artistic license, added to some of the implications built up in earlier pages, creates the impression that the entire novel was designed as a subtle presentation of the case for socialized medicine. As a result, Mrs. Hobart undermines much of the validity that does exist in some of the earlier parts of this book about doctors, modern medicine, and a changing world.

The central figures in the story are two brothers, Dr. Alan Towne and Dr. Sam Towne, grandsons of old Dr. Samuel Towne, who had achieved medical eminence only after many years of struggle and criticism because of his unorthodox ideas. Sam, the older of the two brothers, is portrayed as successful, wealthy, conservative. Alan is drawn as the idealistic, progressive pioneer, striking out in new and dangerous directions and carrying on in the tradition of his grandfather.

The main action begins shortly after the end of World War II when Alan leaves a comfortable, assured partnership with Sam to start a group practice. From then on the troubles and tragedies mount in rapid sequence and growing complexity. In the short space of three or four years Alan becomes an "Anthony Adverse" in modern American medicine. Complex problems and issues affecting the practice of medicine are introduced in rapid-fire, hop-skip-and-jump fashion—over-simplified and over-dramatized, but mixed with just enough truth and half-truth to give credence to a distorted picture. The subtle implication—even in the earlier parts of the book—is that most doctors are primarily and selfishly interested in making money, bolstering their own reputations, and preserving the status quo in medicine.

Mrs. Hobart also gives the impression that group practice, health insurance plans, preventive medicine and similar ideas are brand new developments

—practically untried and unheard of in a present day American city. Actually, most of the concepts and projects which occur to Alan Towne, in sudden flashes of inspiration, are part of the knowledge of any alert medical student. Before Mrs. Hobart writes another novel on this subject, someone should familiarize her with the major facts and realities in the field of modern medical economics. Someone also should inform her that the "National Medical Association," a name which she uses as a pseudonym for the American Medical Association, is the actual and proper name of the national organization of Negro physicians.

Mrs. Hobart, unmindful of such trivia as facts and accuracy, writes furiously on, and after only two or three years of struggle in group practice and as head of a group hospital, Dr. Alan Towne is an advocate of government health insurance. Apparently neither the author nor the good young doctor sees the glaring contradiction between government medicine and Alan's own philosophy of careful, personalized treatment of the whole patient, in mind and spirit as well as in body.

Everyone interested in American medicine, and in the effort to find intelligent solutions to our medical care problems, should read *The Serpent-Wreathed Staff*—if for no other reason than to help repair the damage which the book does.

Living in Balance. By Frank S. Caprio, M.D. 246 pages. Price, \$3.75. Washington: The Arundel Press, 1952.

This book, as stated in the preface, is an ambitious attempt to teach neurotic patients enough about the working of their minds to enable them to become their own psychiatrists—"to show how nervous breakdowns can be prevented . . . to teach the reader how to achieve better living through better thinking."

The aim is certainly commendable, and the author gives an excellent discussion of how neuroses are produced, and suggestions as to how to avoid and to overcome them. The chief objection to such books as this is that the neurotic patient is apt to get from them the little learning that may be a dangerous thing. Dr. Caprio's book is well written and should be understood by an intelligent layman. It should also be helpful to the family doctor who has, perforce, to deal with neurotic patients. He can get many helpful hints as to how to talk to such patients and how to explain to them the mechanism of the varied symptoms from which they suffer. Some chapters in it—especially "The Conquest of Fear" and "Unhappiness is Abnormal"—should be particularly helpful.

The Fight Against Tuberculosis. An Autobiography by Francis Marion Pottenger, M.D. 276 pages. Price, \$4.00. New York: Henry Schuman Co., 1952.

This is a very readable autobiography of a brilliant, warm-hearted scientist, who became interested in tuberculosis when he found that his first wife had contracted the disease from her grandmother. In an effort to save her life he gave up a growing practice and a teaching position in Cincinnati and moved to California. During her illness, which terminated fatally three years later, Dr. Pottenger determined to learn all that he could about tuberculosis. In October, 1901, he became the first man on the West Coast, and one of the first in the United States, to announce that he would limit his work to this one disease. He established one of the first

sanatoriums for its institutional treatment, and became recognized as one of the world's authorities on the subject.

Most of the first half of the book is devoted to the human side of the man, to his family, and his early struggles for a livelihood. Most of the latter half is a more or less scientific discussion of tuberculosis, and the changing trends in its treatment. Perhaps the finest part of the book is the final chapter of a single page, written "from the vantage point of eighty years." He says that he would not change those years for any like period in history. "To be sure, I would like to have again the keenness of youth. On the other hand, I would miss the mellowness of age, the store of experience which guides me in my every moment and act.

"I have tried not to live too much in the past, but to be alert to the problems of the present and future. This . . . does not prevent the years from rolling by . . . but it does prevent that fear of the future which otherwise might make one unhappy in the twilight of life."

Rx For Medical Writing: A Useful Guide to Principles and Practice of Effective Scientific Writing and Illustration. By Edwin P. Jordan, M.D., and Willard C. Shepard. 112 pages. Price, \$2.50. Philadelphia and London: W. B. Saunders Company, 1952.

This little book is perhaps the best friend a budding medical author could have, and should be almost equally valuable to experienced writers in the scientific field. As the authors stated in the preface, its objective is to provide "practical help to medical writers in the preparation of their papers," and it is in no sense a style book or textbook on composition and grammar. Dr. Jordan begins at the very beginning, with the choice of a subject, and outlines logically and concisely the steps to be followed from that point on: "Reading Up," "Recording Notes and References," "Planning the Study," "Evaluating the Audience," "Outlining," "The First Draft," the first, second and third revisions (a separate chapter is devoted to each), and "The Beginning and the End." Then follow chapters on "Special Problems" (from the use of footnotes to dealing with cantankerous editors), "Making the Index" (for authors of books), "Illustrations" (written by Mr. Shepard), and statistics. The appendices list references to other publications which might be helpful, and give useful tables of abbreviations, proofreaders' marks, atomic weights, equivalents, and statistical probability.

It cannot be said that this book makes medical writing easy. On the contrary, it points out numerous difficulties and pitfalls of which many writers, even of considerable experience, are probably not aware. It should, however, help medical authors to produce manuscripts which are easy to read and acceptable to the most critical of editors. There is a great deal of truth in the couplet from Alexander Pope, quoted at the beginning of this manual:

True ease in writing comes from art,
not chance,
As those move easiest who have learn'd
to dance.

Announcement

Appointment of the J. B. Lippincott Company of Philadelphia as sole distributors of subscription editions of University of Chicago Press medical publications has been announced by the Press. The agreement became effective about January 1.

Classified Advertisements

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In Memoriam

BRODIE C. NALLE, M.D.*

With the death of Dr. Brodie C. Nalle, Charlotte medicine lost one of its most outstanding pioneers, and the Charlotte Memorial Hospital one of its best friends. At this moment, we, the members of the Memorial Hospital staff, are thinking back upon his life and his accomplishments, and paying tribute to the memory of this greatly loved man. In so doing, we honor ourselves—we who were privileged to know him as a colleague and as a friend. We can honestly say that Brodie, as all of us so affectionately called him, was everybody's friend. He loved mankind—and perhaps therein was the secret of the happy life. Yes, Brodie loved life—the full life! The zest of living was his fountain of youth!

Genteel, mild mannered, kind, dignified—yet with a twinkle in his eyes, frequently a good story, and always a word of cheer—he was truly a noble man, as well as a true Virginian!

He was the guiding spirit of St. Peter's Hospital—an institution of much tradition and many, many years of service. This hospital submerged its own interests and actually gave up its identity in order that the Charlotte Memorial Hospital might become a reality—which showed rare unselfishness. Thus, the very existence of the Charlotte Memorial Hospital was in large measure due to Dr. Nalle's sacrifice, to his interest in the progress of medicine, and to his concern for the common good. Let us never forget this!

The staff of the Charlotte Memorial Hospital appropriately chose him for its first chief of staff. The Department of Obstetrics and Gynecology chose him as chief of the department. It should be mentioned that monthly meetings with honest appraisal of the professional work done were started while he was chief of the department. This was natural, for it was in keeping with the honesty of this man.

Three years ago the Department of Obstetrics and Gynecology established the Brodie C. Nalle Award to student nurses. Dr. Nalle was always a favorite of the nurses. This award will serve to remind the nursing profession of his loyalty, and of his keen interest in their progress, and inspire them to the highest in standards, and the best in service.

Conservative by nature, yet open-minded, Brodie loved fair play. As much a part of him as his very name, undoubtedly this spirit of fair play was early recognized on the athletic field where he was not only a most outstanding athlete at the University of Virginia, but also an exemplification of the finest in sportsmanship.

He kept abreast of medical progress to an unusual degree, and contributed much to his specialty. He gave of the wisdom of years, usually spoken, seldom written. His colleagues in the specialty had great respect for his judgment, and often profited thereby. His code of ethics was the highest and served as a criterion for the rest of us.

He showed broadness of vision in the establishment and operation of a highly successful clinic group where the patient benefited from the combined knowledge and efforts of physicians in all of the specialties.

Not only was he an outstanding physician, but he was endowed with a wonderful personality. He was truly idolized by his patients. It is also fitting to say that many members of the colored race loved this man.

As a physician and as a citizen, he was, indeed, the true physician. The memory of Brodie Nalle will always be with the medical profession—and should inspire us to follow in his footsteps.

And so, in this moment, keenly aware of the emptiness in our midst which will remain unfilled, we cannot be sad for sadness was not the spirit of Brodie Nalle. Yes, we will remember the joyousness and joviality so characteristic of him—and always be thankful that we had the opportunity of knowing such a man.

O. HUNTER JONES, M.D.

(With grateful acknowledgment to Dr. T. Preston White and Dr. Hamilton W. McKay for their suggestions.)

BULLETIN BOARD

(CONTINUED FROM PAGE 261)

Dr. Leonard A. Scheele was sworn in for his second term as Surgeon General of the Public Health Service on April 3. Confirmation of the reappointment was made by the Senate on March 11.

* * *

Overcrowding in many State mental hospitals is continuing in spite of new construction, according to the Public Health Service of the Federal Security Agency.

A report, based on a survey by the National Institute of Mental Health, shows that nearly 700,000 persons—a figure equal to the population of the State of Utah—were patients in State mental hospitals during 1949.

Copies of the report may be obtained without charge from the National Institute of Mental Health, Public Health Service, Bethesda 14, Maryland. It is entitled *Patients in State Mental Hospitals: 1949*. Mental Health Statistics Current Report IMH-B52, No. 1.

* * *

Seventy-one fellowships to speed medical research careers and to help offset critical shortages in the nation's medical science manpower pool have been awarded to outstanding students, it was announced recently by the Public Health Service, Federal Security Agency.

Awarded by the National Institutes of Health of the Public Health Service, with the approval of the Surgeon General, the fellowships will enable students with marked abilities in the scientific disciplines to bolster their developing research interests.

Awards were granted to the following Duke University students: Arthur F. Dratz, Oak Hill, New York; Glen Roy Gale, Mount Croghan, South Carolina; Irving Green, Burlington, North Carolina.

* * *

By 1992, most of the usual contagious diseases of childhood should be a thing of the past, Dr. Martha M. Eliot, Chief of the Children's Bureau, stated recently.

Dr. Eliot said that some childhood diseases have become "out of date" within the past 40 years. These include whooping cough, scarlet fever, smallpox, and typhoid fever. During the next 40 years, she said, such diseases as tuberculosis, pneumonia, poliomyelitis, and rheumatic fever should be a thing of the past.

The sun is the greatest of remedies.—Pliny, Natural History, A.D. 77, British J. of Tuberculosis and Diseases of the Chest, July, 1951.

*Read at the meeting of the Staff of the Charlotte Memorial Hospital, March 25, 1952.

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THE PSYCHOSOMATIC ASPECTS OF HYPERTENSION

PAUL F. WHITAKER, M.D., F.A.C.P.

KINSTON

Until very recently the structural concept of pathology has received much more emphasis both in teaching and in practice than has psychopathology. There is now encouraging evidence to make one believe that the proper concept of disorders of function is steadily emerging. This is as it should be, for the psyche and the soma cannot be separated in the proper consideration of disease in any branch of medicine. Indeed, the sound concept is that all medicine is psychosomatic, and it is well to observe that there can and should be no attempt at over-simplification of so intricate a problem.

Even the time in which we live necessitates an increasing awareness and understanding by physicians of the psychologic factors of illness. History, perhaps, has never witnessed a more fearful or stressful period. Emotional unrest is widespread and increasing. In their awareness of emotional factors in morbidity, and in their hunger and quest for guidance, the people whom we serve are turning more and more to non-medical sources. In realization of these conditions, the word *health* has recently been given a broad and authoritative connotation⁽¹⁾. The World Health Organization, in its constitution, defines health as a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. The implications of their definition are clear. The physician who accepts it, in his ministry to suffering people, must continuously try to aid the mental and social well-being of his patients, even though he realizes that he cannot alter the physical course of their disease. Those of us who practice medicine in this spirit have found it wearying,

but at the same time gratifying and heart-warming.

Certainly no apology is necessary for the title of this discussion, although a few years back it might have needed some explanations. Schroeder⁽²⁾ makes the following apt and lucid statement: "Arterial hypertension, especially that variety called 'essential' is a psychosomatic disorder." It is well known, however, that multiple factors enter into its genesis. This discussion deals essentially with the psychologic and neurologic influences concerned in essential hypertension, which, in the light of present knowledge, seem to be common etiologic factors, and also to some extent with the nervous, renal, and endocrine (adrenocorticogenic) influences concerned in maintaining an elevated blood pressure.

Those forms of hypertension believed to be associated with other conditions such as disturbances of the endocrine glands (such as adrenal and pituitary tumors), renal excretory insufficiency, either from obstruction or parenchymatous kidney disease, congenital anomalies (such as coarctation of the aorta), and diseases such as polyarteritis nodosa, are not germane to the point of this discussion.

The Problem of Hypertension

Essential hypertension is the most important single process in cardiovascular disease. According to Metropolitan Life Insurance statistics, almost one fourth of all people over 50 die of the effects of hypertension in one of the vital organs. Therefore, it is the gravest problem of middle life, cancer not excepted⁽³⁾. From the clinical standpoint, it is estimated that at least 90 per cent of hypertensive cases fall into the classification of essential hypertension, and the majority of the remaining 10 per cent are secondary to renal disease⁽⁴⁾.

Read by invitation before the North Carolina Regional Meeting of the American College of Physicians, Duke Hospital, Durham, North Carolina, December 6, 1951.

The end results of hypertension are well known. It eventually produces irreversible structural changes, and unless death occurs from some intercurrent condition, it happens in one of three ways. The late Dr. Manfred Call II* succinctly demonstrated this to his students by drawing a triangle and labeling the three sides *cardiac failure* (approximately 50 per cent), *cerebral accidents* (approximately 30 per cent), and *renal failure* (approximately 10 per cent).

It is well to state that essential hypertension, like diabetes, is not a single disease. From one standpoint it is only a sign, comparable to fever, albuminuria, hyperglycemia, or rapid heart action. With all of the multiple and admirable research into the nature of the problem, there are still wide gaps in fundamental knowledge, and confusion and controversy concerning it remain. It is possible, however, from available knowledge to integrate a satisfactory conception that is reasonable, helpful, and valuable from the standpoint of both understanding and therapeutics.

The Role of the Personality

Any discussion of the genesis of this malady immediately concerns itself with the personality of the victim. There are no fixed standards for personality, and there are broad variations in the type of personality able to make successful adaptation. Glover⁽⁵⁾ defines the normal personality as being free of symptoms, unhampered by mental conflict, having a satisfactory working capacity, and being able to love other people. It seems to me that it would be wise to add to these attributes, adequate self-esteem, an optimum number of sound ideas, a sufficient quantity of good will, and the absence of excessive hate.

The psyche or personality has multiple facets and functions. It acts as a co-ordinating center to achieve such immediate physical and emotional satisfactions as are socially permissible, and, at the same time, plans for those best reserved for the future. Obviously the parts of the personality must work together harmoniously to keep the individual in harmony with both himself and his environment.

Studies of personality development reveal that the basis of most pathology of the psyche is established in early life. The brain at

birth is comparable to a clean plot of earth upon which the edifice of the personality is to be constructed. Various traumatic experiences produce permanently deleterious effects upon the personality structure, resulting in weak links which may not become manifest until a crisis occurs in adult life. The subconscious mind is a veritable storehouse of all the experiences to which we have been subjected. Little that happens to us is actually forgotten.

From this vast gray sea of the past (the subconscious), there wells up from varying depths of repression the driftwood of our lives, the fears, frustrations, traumas, griefs, disappointments, injustices and animosities to haunt and disturb us with varying intensities. In the struggle for maturity, which Saul⁽⁶⁾ has termed "mankind's central problem"—a problem which few of us ever actually completely solve—we are subjected to multiple conflicts and experiences, including all of the wandering passions of the human spirit. All this is by way of saying that each human being, hypertensive or otherwise, is a unique and strange equation, consisting not only of protoplasmic structure, but also of that intangible but powerful and vital component known as spirit, upon which has been recorded the impact of all of the experiences of our lives.

Psychologic Factors Common to Hypertensive Persons

Dunbar⁽⁷⁾ has noted similarities in the psychologic factors at work in hypertensive persons as recorded in their case histories. Some of these occur in people without hypertension, but the implication is that they are not common to the general population. They are briefly summarized as follows: There is a history of unsolved conflict with authority, extending into all spheres of adjustment. Unable to break away completely from parental domination, these people manifest a need for dependency. In coping with their conflicts, they attempt to make themselves important and liked, but constantly frustrate themselves, because of pent-up resentment. Having a fundamental insecurity and lack of confidence, they overcompensate compulsively by tendencies toward perfection. Oscillating between active and passive tendencies, they alternately overindulge or overdiscipline themselves. They brood about their difficulties or escape from them by overindulgence. Apprehensive over their illness,

*Late Clinical Professor of Medicine, Medical College of Virginia, Richmond, Virginia.

they become pre-occupied with dying. They are markedly aggressive, and though they attempt to repress it, they often demonstrate great rage. They are victims of ambivalence, which is a double attitude of conscious friendliness with much unconscious hostility that has to be kept concealed. As a result of their emotional status, they are in a chronic state of tension.

These observations, along with those of Weiss⁽⁸⁾, suggest a deficiency or a disturbance in the personality of hypertensive persons. Whether these personality defects are inherited, are acquired during childhood, adolescence or youth, or are developed in adult life as a result of circumstances considered by the individual to be hostile to him and presenting problems which his capabilities cannot solve, cannot be stated definitely. The important point is that these disturbances are present.

If we add to the foregoing studies the common clinical practice of allowing for the emotional element in blood pressure readings; the relationship of emotional stress to the onset of hypertension in certain cases; the fact that anxiety frequently aggravates existing hypertension; the part that rest and reassurance and sedation play in management; the nervousness, tenseness, and emotional lability of many hypertensive patients, then we must be convinced of the great importance of psychologic factors in the genesis of hypertension.

Other Factors

This brings us to other factors concerned in its pathogenesis. Heredity, is in some way significant. All of us who have observed several generations of one family of hypertension appreciate its significance. The cold pressor test⁽⁹⁾ supports the existence of an hereditary factor, suggesting the transmission of susceptibility to the condition in certain families. There is also some evidence to suggest the influence of race and climate⁽¹⁰⁾, although these factors are not pertinent to this discussion.

The neurologic factor is of extreme importance in the mechanism of production of essential hypertension. The essential parts of the nervous system involved in hypertension are the hypothalamus and the sympathetic nervous system. It is through the nervous system that the noxious stimuli from the psyche are transferred and mediated. While the exact pathways by which cortical im-

pulses reach the hypothalamus and set off discharges through the sympathetic nervous system in the brain, blood vessels, and endocrine glands are not thoroughly understood, the results of such discharges are evident.

It is known that increased peripheral resistance is accountable for the picture of essential hypertension. Based upon clinical observation and reasoning, it has long been assumed that increased peripheral resistance results from hypersensitivity of the constrictor nerves supplying the arterioles in the various vascular beds of the body, resulting in vasospasm. Many subjects, both with and without hypertension, show prolonged increase in blood pressure with emotional disturbance, and this persists even after block of sympathetic impulses. This immediately suggests a humoral or chemical factor; and of most concern in the problem of hypertension, in addition to the effects on the blood vessels, are the effects of sympathetic stimulation on the kidneys and endocrine organs. Renal ischemia resulting from sympathetic stimulation may cause the kidney to excrete into the blood stream humoral pressor substances, which maintain blood pressure elevation over a long period by acting on the blood vessels and increasing peripheral resistance. It is reasonable to assume that the mechanism so released can, and in fact does, result in further prolonged action and, repeated often enough, becomes fixed and results in irreversible changes.

There are evidently many pressor mechanisms present in the body of a humoral nature. Some have been identified. Some have not been, although their pharmacologic action is partially understood. Palmer⁽¹¹⁾ makes the prediction that many hormonal links will be found between the psyche and the soma. Eight of these pressor substances are renal in origin. It is reasonably certain that at least one is mediated by the adrenal cortex, either through sympathetic nerve endings or through the production of adrenocorticotrophic hormone from the pituitary, although only a few facts regarding it are known. Others of these pressor substances have their source in blood, urine, tissue, or protein. All are discussed in the recent splendid paper of Schroeder⁽²⁾. The practical implication that he makes is that all of them have to do with the sustaining factors of hypertension rather than with the precipitating factors.

From the foregoing, it is reasonable to assume that emotional storms and conflicts generated in a suitably conditioned psyche, seek and find release in the blood pressure-controlling physiologic mechanisms of the body, just as other psychic factors, for example, seek expression in the smooth muscle of the gastrointestinal tract⁽¹²⁾.

Improving the Management of Hypertensive Patients

With the knowledge now available I think it is possible to improve the management of hypertensive patients. "Self-discipline is needed in this undisciplined world."⁽¹³⁾ This statement applies to physicians as well as other people. Remember that the bulk of practice consists not in curing people but in caring for them. I am not certain that sphygmomanometers haven't done more harm than good. A compassionate untruth is often more beneficial than the truth stated in an unfeeling manner. Where do you think your own blood pressure would go if you were a sensitive hypertensive and your doctor slapped a cuff on your arm before you were barely seated, gave a few pumps, and snarled: "How ya' coming? Let me see, what was your pressure last week? Oh yeah, not much change. Keep taking the same medicine. See me in about two weeks." I ask you if this is an exaggeration?

May I close this discussion by making a few suggestions that may be helpful in improving the therapy of hypertension?

1. If not already possessed of it, acquire a working knowledge of personality development, psychopathology, and psychotherapy. Give disturbance of function the same emphasis in your thinking as alteration in structure. Until this is done by the general physician the crying need of millions of psychologically disturbed people will not be met.

2. Really study the patient as a whole. Stop giving mere lip service to this concept. Study the personality as well as the body.

3. Remember that in treating sick people we are not dealing with cells and organs alone. We are dealing with human beings whose dignity should be respected. It is with the individual that we deal basically. His disease is an unfortunate circumstance, and we must admit that, for the most part, he displays resilience and fortitude in dealing with it. Therefore, we should respect the human spirit contending with and, more often than not, rising above psychic and

physical infirmity. With this attitude we will cease to disparage disturbed people by calling them "crocks," and will receive the same thrill from helping them that we would in detecting and curing a case of amebiasis, for example.

4. Encourage and give the patient time to tell his story—to talk about personal problems. Enter into his mind with sympathy and understanding. Be a good listener.

5. Look for and explain the time relationship between emotional episodes and the onset of his illness. Ask the patient to give his own explanation of his illness. Explain to him the mechanism of symptom formation, and how tension and conflict seek expression through the organs and systems of the soma.

6. Tell your patients that many of their symptoms, such as headache, dizziness, and fatigue, are out of proportion to their elevation of blood pressure, and point out to them that emotion, by seeking bodily expression, may be producing their symptoms⁽¹⁴⁾.

7. Reassure your patients frequently. Let them know that many people with hypertension live long and useful lives. Tell them about people who have carried on usefully with hypertension for a long period of years. Concentrate more on the patient's comfort and peace of mind, and less on trying to bring his blood pressure down. It will often come down if the first suggestion is accomplished.

8. Don't overdo advice about rest and vacations. No one can run away from trouble. Remember that rest means mental and emotional rest, as well as physical rest. Encourage the patient to engage in work and social endeavors within his limits. This sublimates anxiety, externalizes and channels psychic energy, and diverts attention from somatic sensations.

9. Attempt to desensitize the patient to unfavorable environmental influences by repeated discussions. Let him understand that life consists of the ability to "take it" as well as enjoy it. If desensitization is unsuccessful and modification of environment impossible, then change of environment may be cautiously approached.

10. Finally, remember that hypertension, like diabetes or cardiac disease, requires more or less constant supervision. Don't apologize for having emotionally disturbed people return often for psychotherapy. We make no apologies to a diabetic or a heart

patient for doing so. Furthermore, some patients won't keep appointments just to complain or have their blood pressure taken, although they will go to a cultist or an osteopath for massage. Therefore, bimonthly injections of some innocuous vitamin preparation several times a year might serve to keep them coming back for 15 or 20 minutes of needed psychotherapy.

The physician who follows these suggestions, joining human warmth and understanding to professional skill, will not only find greater happiness personally, but will widen the scope of his usefulness. "Only by so doing will he accept the whole burden and fulfill his destiny."⁽¹⁵⁾ It is the second mile enjoined in the text, "And whosoever shall compel thee to go a mile, go with him twain." The true physician will accompany his patient on the second mile and to the end of the road.

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PROPERTY OF
WATTS HOSPITAL
BARBITURATE ADDICTION
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It is the purpose of this paper to examine a problem that is becoming more and more acute as time goes by—barbiturate addiction.

Many essayists consider the terms *chronic barbiturate intoxication* and *barbiturate addiction* as being synonymous. Medical dictionaries say merely that addiction is the state of being given up to some habit or practice, as a drug habit. Isbell⁽¹⁾ states that chronic intoxication with barbiturates represents a true addiction no matter how addiction is defined.

Barbital, introduced under the trade name of Veronal⁽²⁾ by Fisher and Von Mering in 1903, was the first of the series of barbiturates to become official in the United States Pharmacopeia. Close to 2,000 kinds of barbiturates have been developed, but probably not more than 25 have survived clinical use. As we know, most new preparations are extolled by their manufacturer as being superior, in terms of potency, efficiency, shortness of action, margin of safety, and size of capsule or tablet, to anything yet produced.

As early as 1913 the habit-forming properties of the barbiturates were recognized. In 1913, Dr. Frederick J. Farnell wrote: "There has recently been introduced in this country a new sedative and hypnotic called Luminal."⁽³⁾ Dr. Farnell stated further that this drug was capable of producing toxic and untoward symptoms in some patients, and that the toxic action of the drug did not manifest itself until an accumulative reaction had taken place. The accumulative and habit-forming properties of this drug are one of the most difficult problems with which we have to deal.

The Use and Abuse of Barbiturates

No one will deny that phenobarbital, as well as other barbiturates, has been of great value in the treatment of many diseases. Many of us can recall that phenobarbital, until the introduction of Dilantin and other anticonvulsants, was the drug of choice in the treatment of epilepsy. Barbiturates are also useful as hypnotics, sedatives, and anes-

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From Westbrook Sanatorium, Richmond, Virginia.

thetics when properly prescribed by a physician — and a physician only — who understands his patient and the effects of the drug.

The promiscuous and indiscriminate use or abuse of barbiturates has become a problem of increasing concern to many physicians, law enforcement officers, and legislators. The production of barbiturates has steadily increased and now appears to exceed greatly the amount needed for therapeutic purposes. In 1948 the total production of barbiturates in the United States was 672,000 pounds⁽⁴⁾, an amount roughly equivalent to 3,057,730,000 capsules or tablets of 0.1 Gm., or 1½ grains each, or approximately 24 doses for each person in the United States. The seriousness of the situation has been well publicized, and many are agitating for laws similar to those governing the sale and use of narcotics.

The need for legal control

In February, 1951, I asked my congressman for information concerning the federal laws relating to the sale and prescription of barbiturates. My request was referred to the Food and Drug Administration, which is controlled by the Federal Security Agency. From this agency I received the following reply: "Some measure of control of the sale of barbiturates received from interstate sources is achieved under the Federal Food, Drug and Cosmetic Act which we enforce, although the statute is not designed to deal specifically with the barbiturate problem." It seems that the act requires special labeling of barbiturates, but does not deal with the restriction of the sale of these drugs.

Psychiatric Basis of Barbiturate Addiction

No doubt psychiatrists will be called on more than any other group of medical specialists to treat barbiturate addiction, since it, like other addictions, is usually superimposed on some underlying psychiatric disorder. People who use drugs chronically usually have some form of psychoneurosis or a character disorder. Neuroses associated with anxiety or insomnia are particularly prone to lead to chronic barbiturate intoxication or addiction. Barbiturate addicts usually prefer the fast acting drugs such as Seconal, Nembutal, and Amytal.

Relation to other addictions

In many instances alcoholism and narcotic addiction predispose to barbiturate addic-

tion. The inability to obtain narcotics frequently causes the individual to switch to barbiturates until narcotics can be obtained. It is then we have what may be classified as the double-header type of addict, because he usually continues to take both drugs. The alcoholic addict frequently becomes addicted to barbiturates when he takes the drug to give him a lift or to overcome the bad feeling that he gets from the prolonged use of alcohol. The fear that alcohol may be detected on his breath may also cause him to switch to this drug.

I have recently been informed that the use of Antabuse in the treatment of alcoholism has caused some patients to switch to barbiturates while continuing to take Antabuse, a condition that no doubt will eventually be more difficult to control than their alcoholism.

Psychoneurotic patients usually begin taking the drug by prescription from physicians⁽¹⁾. Tolerance builds up gradually, and it is not unusual to find these patients after a long period of time taking many times the amount originally prescribed. People with character disorders are frequently introduced to the drug by associates for the purpose of intoxication. These people often combine the barbiturate with benzedrine or alcohol, the benzedrine being taken to counteract the depressing effect frequently produced by large doses of barbiturates.

Space will not permit a discussion of the combined use of alcohol and barbiturates which is now so common a practice, especially among alcoholic addicts. All physicians should familiarize themselves with the synergistic effect of barbiturates and ethyl alcohol, and the poisoning that can be caused by the combination of these two drugs. From the findings of Dr. Harvey Haag of the Medical College of Virginia and others who have done much research on this subject, we have learned to be much more cautious in administering barbiturates to alcoholic patients.

Criteria of Barbiturate Addiction

According to a bulletin recently released by the Veterans Administration⁽⁵⁾, it is difficult to establish the minimal amount of drugs which must be ingested daily in order to term the condition chronic barbiturate intoxication or barbiturate addiction. Clinical data suggest that most persons can ingest 0.2 Gm., or 3 grains, of any of the potent

barbiturates per day for years without incurring any definite harm. The ability and efficiency of individuals who take as much as 0.8 Gm., or 12 grains, of a potent barbiturate daily is greatly impaired if this amount of drug is ingested for as long as two months. The generally accepted criterion is the appearance of severe symptoms, in the majority of cases, on abrupt withdrawal of barbiturates. Patients who have been taking 0.3 to 0.8 Gm., or $4\frac{1}{2}$ to $10\frac{1}{2}$ grains, of one of the potent barbiturates daily fall into an intermediate class. Nearly all show some evidence of impairment of mental ability. Reports from a considerable amount of psychometric testing indicate a drop of 20 to 30 in the intelligence quotient of these patients⁽⁴⁾, and the Rorschach test frequently indicates mental changes.

Signs and Symptoms

The signs and symptoms of chronic barbiturate intoxication vary with the individual. The amount of the drug consumed and the length of time the individual has been taking the drug are important factors. All the symptoms observed are predominantly the result of the effects of the drug on the central nervous system, and may be divided into psychologic and neurologic signs.

The *psychologic symptoms*⁽⁴⁾ of chronic barbiturate intoxication are early manifested by impairment of intellectual functioning, poor judgment, confusion, depression, and melancholia. An early sign is that these individuals neglect their appearance: they become unkempt and dirty. Their difficulty in performing simple psychologic tests has already been referred to. They are morose, irritable, and have difficulty in performing heretofore simple tasks. The fact that they take more and more of the drug definitely indicates impairment of judgment. Suicides may result from the befogged state or depression brought on by the drugs. Patients occasionally regress to an infantile level, and have to be waited on and fed. Feces and urine may be passed involuntarily.

Neurologic changes accompanying chronic barbiturate intoxication are frequently spectacular. They often suggest organic disease of the nervous system such as multiple sclerosis, Parkinsonism, cerebellar brain tumor, and other diseases involving the central nervous system. The signs observed include nystagmus, tremor, ataxia, dysarthria, hypotonia, decrease in abdominal reflexes, and

occasional transient ankle clonus and Babinski signs. There are no sensory changes.

The effects of the drugs vary markedly in the same person from day to day. Doses which one day cause acute intoxication and even coma will on another day produce only mild signs of intoxication. This difference in effect, like variations in the effect of alcohol, is partially related to intake of food. The degree of intoxication increases throughout the day as the individual ingests more and more of the drug, and partially diminishes after sleep.

Partial but not complete tolerance occurs. In the average case of barbiturate addiction, the daily intake is usually about 1.5 Gm., or $22\frac{1}{2}$ grains, of one of the potent barbiturates and, once addiction is established, symptoms of severe intoxication do not occur unless this amount is exceeded.

Abstinence Symptoms

At one time there was considerable controversy in regard to the symptoms noted in withdrawal of barbiturates from chronically intoxicated individuals. Symptoms may occur if the dosage is suddenly reduced 20 to 50 per cent of the accustomed amount. Most authorities agree that abstinence from barbiturates is more dangerous to life than is abstinence from morphine. In the first few hours following withdrawal, intoxication declines, confusion improves, and the neurologic signs diminish. Soon thereafter, however, the patient begins to complain of weakness, anxiety, nervousness, nausea, and vomiting. Fainting may occur, since there are cardiac symptoms such as tachycardia and fall in blood pressure.

Anywhere from 12 to 30 hours⁽⁵⁾ after the last dose of barbiturates is taken, tremor and twitching of the various muscle groups appear. There may be uncontrollable bouts of shaking of the extremities without loss of consciousness. These bouts may be classified as minor seizures, and can well be the forerunner of a *grand mal* convulsion. The Germans have long recognized that withdrawal of barbiturates from persons addicted to these drugs may be followed by the appearance of convulsions, a psychosis which resembles delirium tremens, or both. In recent experiments, Isbell and his co-workers⁽¹⁾ administered pentobarbital, Seconal and Amytal to former morphine addicts for three to five months. Following withdrawal of the

drugs, 4 of the 5 subjects had convulsions, and 4 became psychotic.

This experiment showed that the symptoms of abstinence from barbiturates were not due to a combination of intoxication, to malnutrition or to a pre-existing psychotic or epileptic diathesis. The number of seizures varies greatly. Some patients, as has been stated, escape seizures altogether. Others have only one seizure, and occasionally status epilepticus develops.

After the convulsive stage of abstinence symptoms, the patient may improve for a day or so, but soon thereafter anxiety reappears and sleeping may be disturbed by frightening dreams. As time goes on, actual psychotic symptoms in the form of hallucinations and delusions appear. As a rule, the patient becomes disoriented as to time and place but not person. Recovery usually begins with the return of the ability to sleep. During the delirium the temperature is usually elevated 1 to 2 degrees. Recovery from the barbiturate withdrawal syndrome appears to be complete.

Differential Diagnosis

Barbiturate addiction may be confused with bromide, alcohol, or opiate intoxication. Bromide intoxication can be excluded by negative blood tests for bromide. In alcoholic intoxication, the odor of alcohol can usually be detected on the breath and the blood alcohol level is high. Chronic intoxication by opiates presents quite a different picture from that of barbiturate intoxication. In opiate intoxication, the usual neurologic symptoms seen in barbiturate addiction or intoxication are absent.

Chronic barbiturate intoxication occasionally must be differentiated from Parkinsonism, encephalitis, multiple sclerosis, brain tumors, and other neurologic conditions. Convulsions associated with abstinence from barbiturates must be differentiated from such conditions as idiopathic epilepsy, brain tumors, hysterical seizures, uremia, and other conditions associated with convulsions. The psychoses that follow the withdrawal of barbiturates must be differentiated from many other forms of psychoses due to other causes.

Laboratory Aids to Diagnosis

Extensive laboratory work is being carried out in an effort to perfect a satisfactory and

practical test for barbiturates.* Unfortunately, some of the tests are rather complex, and the apparatus requires the outlay of a rather large sum of money and a skilled technician to perform the test.

The analysis or test depends upon the type of barbiturate that has been used. Some barbiturates are fast acting, and naturally are soon eliminated by oxidization. Others are slower acting and, again by their mechanism, slower to be eliminated. The fast acting drug induces sleep; the slower acting drug does not induce but prolongs sleep.

Examples:

Drug	Duration (hours)
Pentothal, Evipal	½ to 2
Nembutal, Seconal	3 to 6
Amytal, Neonal, Alurate	8 to 12
Barbital, phenobarbital	18 to 24

In dealing with cases of Pentothal or Evipal addiction, it is important to remember that the drugs work fast and are eliminated fast; if laboratory examination is attempted, it is likely that no traces will be found five or six hours after exposure. The fact that the results are negative does not imply what the level was previously.

Evipal and Pentothal, however, are not commonly used except as anesthetics. Seconal and Nembutal are the drugs physicians usually prescribe and the ones most uniformly preferred by addicts. If analysis or examination is made 12 to 15 hours after exposure, the chances are that only traces or nothing will be found. Amytal, Dial, Neonal and Alurate, being slowly eliminated, naturally can be detected over a longer period of time. Barbital or phenobarbital may be detected as long as a week after ingestion.

Cobalt color reaction test

For analysis, urine or blood are the specimens of choice. Koppanyi⁽¹⁾ and his associates perfected the cobalt color reaction by which any barbiturate can be detected in urine following ingestion. This test is convenient but not specific. False positive reactions are possible with acetates, sulfonamides, benzoic acid, and other related ureide compounds.

Method: Slightly acidify about 100 cc. (possibly less) of urine with several drops of dilute sulphuric acid (about 2 per cent). Then shake and extract with ether in 200 cc. portions, each time allowing the layers

*I am indebted to Mr. Sidney Kaye, of the Virginia State Laboratory, for the information contained in this paper concerning the laboratory tests for barbiturates.

to separate, coloring the ether layers which will contain the barbiturates. Carefully evaporate this ether extract to dryness. Dissolve the extract with approximately 3 cc. of chloroform. Place about 15 drops of this chloroform extract in small test tubes and add 2 drops of 2 per cent cobalt acetate (prepared in *absolute* methyl alcohol). Overlay this solution with approximately 10 drops of 5 per cent isopropyl amine (prepared in *absolute* methyl alcohol). A blue, purple, or green color will be evident at the interface, or narrow intervening layer. This tube can be shaken and the blue color will diffuse throughout the tube. The intensity of color may be used as an approximate estimate of the amount of barbiturate present. If all assay precautions are taken, this procedure is sensitive only to approximately 0.5 mg. of barbiturate. Moisture will interfere with the color formation of the test. Since barbituric acid derivatives are really urea malonate (urea and malonic acid), any ureide would give this reaction.

Spectrophotometer test

A more specific and sensitive test is that using the ultraviolet range of the spectrophotometer. This method is sensitive to 1 microgram, and is applicable to blood and urine. As mentioned, the cost of equipment makes this test impractical for routine tests, especially in the blood. The examination of the urine is less expensive and more practical.

Electroencephalograms

In sustained barbiturate intoxication, the electroencephalogram⁽⁶⁾ characteristically shows fast activity, superimposed on slow waves. During withdrawal, the fast activity disappears and a normal record may follow, but if a convulsion is imminent, paroxysmal bursts of high voltage slow waves appear. The electroencephalogram of *grand mal* convulsions due to barbiturate withdrawal is indistinguishable from that of similar convulsions due to other causes.

Treatment

It is essential that the treatment of patients addicted to the use of barbiturates be carried out in a qualified hospital or institution. Treatment in the office or home, as a rule, proves unsuccessful and may even be dangerous in view of possible complications.

The treatment of barbiturate addiction has

two phases: (1) withdrawal of drugs; (2) the rehabilitation of the patient. It is in the latter phase that adequate psychiatric treatment is important.

Withdrawal of drug

Once it has been established that a patient is chronically intoxicated with barbiturates, he should be given 3 to 6 grains⁽¹⁾ of some preparation of barbital orally every six hours; the exact amount depends on the condition of the patient. At times it may be wise to give a smaller dose at more frequent intervals—say every three to four hours. Reduction should be carried out very slowly. If the patient becomes irritable, sleeps poorly, is tremulous and frightened, and does not exhibit transient nystagmus, the dose is too small and should be increased. The dosage should not be reduced more than 1 or 1.5 grains (0.065-0.1 Gm.) daily. It has been recommended that the reduction should be stopped for two or three days about midway the reduction period. As a rule, it should take approximately two weeks to withdraw the drug from the patient completely.

Supportive therapy: In addition to the gradual withdrawal of barbiturates, it has been our practice at Westbrook Sanatorium to begin supportive therapy as soon as these patients are admitted. By supportive therapy is meant the administration of vitamins, first intravenously and later intramuscularly and orally. Special attention is given to fluid intake and the diet. As a rule, we give all these patients 50 micrograms of B₁₂ intramuscularly every day for at least two weeks, and anywhere from 1 to 2 Gm. of Tolserol or an allied preparation three times a day for the same length of time. After the reduction of the barbiturate is completed, the amounts of B₁₂ and Tolserol can be decreased, depending upon the patient's condition. It has been our observation that patients receiving Tolserol and vitamin B₁₂ seem to be much more comfortable than those who do not receive these aids, and the reduction period apparently is not nearly so trying for the patient or the physician.

Rehabilitation

As soon as the barbiturates have been withdrawn, a full psychiatric evaluation of the patient should be made with the idea of proceeding with the treatment of the patient from a psychiatric standpoint. Any physical defects should certainly have prompt attention.

Barbiturate Addiction as a National Problem

There is no mistake that barbiturate addiction is fast becoming one of our country's greatest medical problems. It is growing by leaps and bounds, and no doubt is now more difficult to deal with than addiction to any other drug, narcotics included.

Since the federal laws governing the dispensing of barbiturates appear to be much too lax, psychiatrists should do everything possible to have enacted a federal law similar to the one now governing the sale and dispensing of narcotics.

As we know, the enactment of laws has not eliminated the opium habit; neither will it eliminate barbiturate addiction. Therefore, other methods of approach will be necessary. In my opinion, the drug companies are not blameless in regard to the present situation. Each company is continuously playing up the virtues of this or that barbiturate preparation. I do not recall seeing in any of their advertisements a reference to the harmful effects of the drug.

Since the drug companies have reaped a considerable profit from the sale of barbiturates, they should be willing to help eradicate this menace. I believe that an intensive educational program could be conducted by the drug companies through the various medical journals, and in this way it would be brought to the attention of many a physician how harmful barbiturates may become when improperly prescribed.

The public, as well as physicians, should have brought to their attention the fact that barbiturate addiction is becoming a nationwide problem, and that unless steps are taken to control the sale of barbiturates, it will become one of the most serious and crippling addictions this country has ever known.

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BLUE CROSS-BLUE SHIELD AND THE DOCTOR

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The idea of insurance against unpredictable illness and disability is not a new one. Records show that in the seventeenth and eighteenth centuries some such efforts were made. Everyone is acquainted with the German "Krankenkasse" under Bismarck. The Scandinavian countries have long had some type of sickness protection, largely operated by the government. About the first instances that in any way simulated Blue Cross or Blue Shield as we know it today were some abortive attempts in Oregon and Washington in the 1920's. California, in 1939, I believe, was the first to put into successful operation such a plan. Michigan, in 1940, and many others followed in rapid succession. The idea has swept over the entire nation and some of the territories, there being in existence now some 78 plans in 44 states.

What Blue Cross and Blue Shield Are

Now, what is there unique about Blue Cross-Blue Shield that it has swept the whole country like a storm? No commercial endeavor that I am aware of has made such vast strides in such a short period—about 12 years. Commercial insurance companies have assumed enormous proportions, but it has been by a slow and tedious process. They have realized the possibilities of some type of sickness insurance, but are notoriously reluctant to assume risks that cannot be supported by actuarial figures and experience tables; and they had very little of this information until the trial and error method of a pioneering Blue Cross and Blue Shield made it available.

To answer this question, then, most of us must change our concept of what Blue Cross and Blue Shield are. Certainly, we all remember the hectic thirties, when this nation passed through the most devastating depression in all its history. Jobs, money, and credit were nonexistent, and the thing that concerned you and me was the sick man, woman, or child who could not avail himself of hospital and medical services because of a lack of funds. It is true, doctors could and

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did give their services and received remuneration only when and if possible. Hospital bills, however, had to be paid. It is an undeniable fact that the American people, and American industry and ingenuity, have always risen to the demand in times of need. And so it was in this time of need and near disaster: American medicine—the best the world has ever known—accepted the challenge and gave birth to the device known today as Blue Shield.

We must, therefore, stop thinking of this device as just another insurance company, and consider it as part and parcel of a great social movement involving many other lines of endeavor than our own. Fortunately, it is evolutionary rather than revolutionary in nature. To me, it is a way of life; it is a new way of living. Our particular part of this great social change may well be compared with the labor movement of recent times. It too was a response to the demands and necessities of the people, and, although its history has been marked by actual violence at times, I am sure that in the end the benefits derived therefrom will justify the means.

Any radical change in our habits and mode of living is certain to result in trouble and conflicts, assuming at times almost the proportions of chaos. And so it has been with Blue Shield. The amazingly rapid growth of Blue Shield, I am sure, attests to the soundness of the theories and principles upon which it is founded, but it has also resulted in what at times appear to be almost insurmountable barriers and obstacles. Witness the multiplicity of plans, duplication of efforts in small areas, inter-plan quarrels, intra-plan disputes, and hospital, physician, and patient abuses. But out of this chaotic state, I am sure, ultimate order will be achieved. A general pattern will be evolved, very likely on a statewide level, which will vary in minor details only because of geographic location or local social and economic conditions, and a national organization in which all others can participate will emerge. Such an organization, as you know, is well underway.

The importance of Blue Shield in our national life, and its power as a weapon for social reform, may well be judged by its impact on other forces and agencies. For example, it is no secret that the national Administration has gone to great length in effort and expense to force upon the American people a type of socialistic medical prac-

tice, and in its propaganda to discredit the Blue Cross and Blue Shield idea. In spite of the unlimited funds available for this purpose, we are hearing less and less of Mr. Ewing, and Blue Cross-Blue Shield enrollment is increasing at an incredible rate. Mr. Truman recently appointed what is commonly called the Magnuson Committee. The function of this committee is rather obscure, except that it is to make a survey of all other surveys to determine whether any further surveys are necessary. In my personal opinion—which I believe is shared by others—this committee is a subtle device to get someone off the hook and leave the committee holding the bag.

Another example is the interest of labor and management in our plan. Labor is repeatedly using Blue Cross-Blue Shield or similar ideas in its bargaining with management, and the latter is more and more coming to regard it as a necessary agency in better labor relations. Both parties are represented on Boards of Directors and give unstintingly of their time to improve and extend its scope of operations. Commercial carriers are scrambling to write similar protection at competitive rates, and profiting by our hard won experience.

Probably the most striking effect was that extensively discussed by several speakers at the recent San Francisco conference: the rapid and alarming decrease of clinical material in teaching institutions. This was attributed entirely to the fact that the American people would rather avail themselves of Blue Cross and Blue Shield protection at a cost commensurate with their income than to become the recipients of charity in a university hospital ward. There are other examples too numerous to mention.

Purpose and Objectives

Now that we have defined what Blue Cross and Blue Shield really are, we should be able to define as clearly what are or are not their objectives, what is or is not their real purpose. First, let me enumerate three items which these agencies are *not*:

1. It is definitely not a primary objective of Blue Cross-Blue Shield to defeat "Ewingism" or socialized medicine. If that is achieved—and I'm sure it will be—that result will be purely a by-product, like a gas recovered from a chemical reaction: a valuable product to be sure, but entirely ancillary to the primary reaction.

2. Blue Cross is not a method of subsidizing poor hospital management. Many hospitals have availed themselves of the opportunity to improve their financial status at the expense of Blue Cross by devious methods of bookkeeping and cost accounting, unreasonable markup on drugs, supplies, and services. How widespread this abuse is, no one knows. That it exists, is certain. This will very likely be corrected and must be corrected by uniform systems of accounting and auditing.

3. Blue Shield is not an agency to insure every doctor's fee for every service he renders. Its purpose is most definitely not to insure him against all bad accounts and assure him of 100 per cent collections.

There is one and only one real objective of Blue Shield: to assure Mr. and Mrs. Average American and their children adequate hospital and medical care at a price they can afford to pay. Do this one thing well and the blessings accruing therefrom will be given unto you.

You will note that our one objective readily breaks down into two components: (1) Adequate hospital and medical care; (2) at a price people can afford to pay.

"Adequate hospital and medical care"

Let us examine and further break down the first objective. I use the term "adequate" advisedly and in the exact meaning of the word as I understand it—namely, sufficient, not necessarily complete, without frills or window dressings or trimmings. This first component is undoubtedly the more important of the two, because any slight variation or modification has a direct and determining effect on the second. Many will not agree with me on this point and will not be satisfied until we can substitute the word "complete" for "adequate." I do not believe that (1) such a thing is feasible, or (2) the people want it. I have great faith in the pride of most of our citizens. They want to stand on their own feet, pay their bills with no strings attached. They buy automobiles and insure them. Do they insure them to the extent of *complete* protection against every slight damage that may occur? They do not. They feel that for the ordinary scratch on the paint or dent in the body they themselves can easily provide. It is the more serious damage they must protect themselves against, and why is this? Because the cost is prohibitive.

The same thing is true of medical care. I am sure that the great majority of people are willing to pay the cost of ordinary minor illnesses, the occasional house call or office call, and even the ordinary run of diagnostic procedures; but it is the more serious illnesses, surgical operations and long hospital confinement that is frightening and may upset the family economic status for a lifetime. There are many other angles and facets as to what constitutes adequate medical and hospital care which we cannot go into at this time, such as care of the indigent, the retired, and the unemployed.

"... at a price people can afford"

The second component of our objective is "at a price people can afford to pay." I do not know what that price is; I don't believe anyone does. Many complicated studies have been conducted to determine this question, and the most common report is that people can't afford to pay anything for the cost of illness. This, of course, is absurd, as proved by the millions of dollars that have been poured into Blue Cross-Blue Shield treasuries for medical services and handouts.

The Question of Costs

Of one thing I am sure: I am convinced that the present premium rates are about as high as they can go without discouraging new subscriber enrollments. Hence, we have only one alternative: reduce the costs. There are three factors which influence costs: (1) *efficient management*; (2) *utilization of benefits*; and (3) *abuse of utilization*. With the first we are not concerned at this time. What normal utilization is has never been accurately defined, but it is extremely sensitive to stimulus. Increase contract benefits and utilization figures will make some violent responses, as I shall show later. This can be largely controlled by additions to or subtractions from the benefits. It should not be necessary to control utilization, because, as stated before, that is our main objective—to give necessary and adequate care; and it would not be necessary to exercise rigid controls were it not for the abuses that always follow liberalization of benefits. We want our subscribers to use our facilities, but to abuse that privilege may spell disaster.

The problem of abuses

There are four elements that enter into the problem of abuses:

1. Blue Cross-Blue Shield themselves
2. Hospitals
3. Patients
4. Doctors

The first two elements already have been alluded to and constitute a long story in themselves, but the present discussion will be confined to the latter two—patients and doctors. They are inseparable, and one without the other cannot consummate abuse.

For example, Mr. Smith, who has a combined contract, goes to see Dr. Jones, a participating physician. Little Johnny has tonsillitis. Dr. Jones prescribes treatment, but Mr. Smith feels that Johnny should be in the hospital, because mother isn't feeling too well and there are grandma and grandpa at home to take care of. Incidentally, Mr. Smith has had a little gas on his stomach and would like a complete checkup, with x-rays and perhaps a cardiogram. Moreover, he and Johnny could be in the same room and all would be nice and cozy. Dr. Jones explains that, in the first place, it isn't necessary to go to all that trouble and, in the second, the Blue Cross-Blue Shield contract does not cover all these items. "Well," says Mr. Smith, "Dr. Brown did all this in the hospital for my neighbor, and if you don't do it for me, I'll have to see Dr. Brown."

Dr. Jones doesn't feel quite right about the matter, but he just can't see his nearest competitor taking over one of his old time families, and anyhow it is only one case; so it is agreed that Mr. Smith and Johnny are to be hospitalized. Just as Mr. Smith is walking out of the door, he turns and says: "Say, doctor, I just got a notice from Blue Cross-Blue Shield saying that the rates for my certificate are going up a dollar a month. That's a 20 per cent increase and the third one in two years. If these rates go any higher, I'll have to drop the insurance." Dr. Jones muses a moment. "A 20 per cent raise, and the third in two years. That's a lot. Oh, well, that's none of my business. Let those Blue Cross-Blue Shield fellows worry about that. Anyhow, what's insurance for?"

If Mr. Smith and Dr. Jones were alone in this matter, little damage would come of it. Multiply these two by a hundred, and there is sure to be trouble. Multiply them by the thousand, and disaster is certain.

Now Mr. Smith and Dr. Jones are both parties to a violation. The patient's attitude is understandable. After all, he has paid his subscription rates and he wants his money's

worth, but he has not read the certificate he holds and wouldn't understand it if he did. Dr. Jones, however, is a Blue Shield participating physician. He knows, or should know, the rules. He is in the same position as an attorney-at-law. He is an officer of the court and sworn to adhere to and observe the laws regardless of his sympathies toward his client.

Unnecessary hospitalization

About a year ago, I became interested in the question of Blue Cross abuse by physicians. I made a rather cursory study of the situation in our hospital, a 185 bed institution. The results were revealing. I found that there were 26 patients who had been in the hospital two weeks or longer. Of these 26, 19 had Blue Cross coverage. I studied the charts of these 19 carefully, and in my opinion only 3 had, by any stretch of the imagination, a good reason to be in the hospital, and all 16 remaining were ambulatory.

Five were patients with casts of some sort for fractures; several were waiting for cast changes and x-ray checks a week or 10 days hence. Three were diabetic patients under control, 2 of whom were there because they felt they had no better place to go. Two were ambulatory cardiac patients, well compensated. One had had a tonsillectomy and was later to have a hemorrhoidectomy, but was biding his time and resting in the hospital because his surgeon could not get a boarding for another week. Two were postoperative patients getting dressings every other day. One was receiving x-ray treatments for a sub-acromial bursitis. One was a man 80 years old who was irrational and incontinent, and had been brought in because the family wanted to spend a Merry Christmas without the trouble of having grandpa around. One had a cirrhosis of the liver and was having a paracentesis done every 10 days. One had so-called rheumatoid arthritis, and was being treated with cortisone.

This last case was to me the most flagrant instance of abuse on record. The physician had unwittingly documented it perfectly and signed it. He had written 10 orders for leave of absence from the hospital. One was to attend a banquet at the Statler Hotel and several were for entire weekends at home. This case cost Blue Cross \$733.00 and Blue Shield \$106.00. The patient was in the hospital 32 days.

After gathering this information, I went

before a staff meeting the following day with some rather pertinent statements. By noon, we had 15 discharges.

There were other types of abuses. Orders had been written for expensive antibiotics in large doses and multiple varieties, and never discontinued. Large numbers of unrelated laboratory tests were ordered, seemingly to make an impressive appearance on the chart. Prescriptions for expensive drugs were written and filled for the patient to take home, and charged to Blue Cross. Fictitious admitting diagnoses were made to get the patient admitted for prolonged diagnostic workups, and so on almost indefinitely.

Further examples of abuse

This rather superficial study was followed by a more detailed study made at a much larger hospital. The following findings were reported:

The committee reviewed 1,276 cases of patients admitted to the hospital during the month of January, 1951. These cases were studied in regard to age, admitting diagnosis, length of stay in the hospital prior to surgery, complications, findings at surgery, treatment while in the hospital, discharge diagnosis, and length of stay in the hospital. As a result of this review of individual cases, the following findings were reported:

1. Sixty patients took up 560 hospital days for diagnostic purposes only. The investigative studies on these cases could have been done either at the doctor's office or at an out-patient clinic. In addition, there were 16 cases, involving 165 hospital days, that did not require hospitalization for any apparent reason.
2. Sixteen patients took 393 hospital days for roentgen therapy and physiotherapy only.
3. Twenty-four patients took up 133 hospital days in unnecessarily long pre-operative preparation.
4. Twenty-four patients took up 167 hospital days in unnecessarily long post-operative stay.
5. Twelve medical patients took up 155 unnecessary days in prolonged medical care.
6. Nine orthopedic patients took up 47 hospital days while ambulatory and not needing hospitalization.
7. Some patients were admitted under a false acute diagnosis in order to get the patient into the hospital for a checkup.

The above findings represent a misuse of approximately 1,700 hospital days for one month or approximately one sixth of the capacity of the hospital.

To me, this situation is alarming. Certainly there is evidence of gross carelessness and negligence, and some downright dishonesty. Some actuaries do not feel that it is very important, because if one patient moves out of a bed, another moves in, and it makes no difference who the current occupant may be. I am hoping, however, that we may eventually again see an empty bed.

Professional Responsibility

Now, what can *doctors* do about this? I'm sure I do not know the answer, but I have some ideas on the subject. If what I have said about the fundamental nature of Blue Cross-Blue Shield is true, what I shall say now may be of some help in this situation.

We have suddenly found ourselves projected into an activity that is of most vital concern to us, and upon its failure or success depends our profession, our personal welfare, and maybe our very existence. That being true, it behooves us to assume a strong leadership and guide this most potent agency into proper channels, in the right direction, that its usefulness may be preserved for the people and, incidentally, that we may reap our own salvation. It is like a religion, and at the moment I can see the necessity for a lot of converts. Each one of us individually is due for a searching, critical, self-examination.

Have we, the ones who must be the leaders, been entirely above reproach? If so, it at once becomes our duty as individuals and as a group to preach the gospel of Blue Cross and Blue Shield for what they are, to our less well informed colleagues. From experience, I can tell you, it is not easy. The treatment must be applied time and time again before appreciable results will become apparent. How you do it will be a matter of local expediency. I am sure that the prosecution of one individual or the acceptance or rejection of a single case is not the answer. The answer lies in a planned program to bring about, within the medical profession, realization of the significance of Blue Cross and Blue Shield as social programs, and the very important role it must play in their successful operation. The problem can be dealt with only through the medium of a carefully planned and consistent approach to the doctors.

TREATMENT OF POSTOPERATIVE VENOUS THROMBOSIS

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The prevention of fatal pulmonary embolism is the primary consideration in the treatment of thrombophlebitis, and the form of therapy elected should be directed promptly and vigorously at obviating this complication. The reduction of postphlebotic sequelae is secondary but still a matter of sufficient importance to swing the pendulum toward the selection of one therapeutic regimen over another if both are equally effective in the primary consideration.

Pathologic and Physiologic Considerations in the Choice of Therapy

The choice of therapy is dependent upon an understanding of the pathologic and physiologic changes occurring in patients with thrombophlebitis.

Originally, thrombophlebitis was considered to be a disease confined to the venous system in the peripheral portion of the lower extremities, and superficial femoral vein ligation was advocated⁽¹⁾ to prevent the emboli from reaching the pulmonary circulation. However, recent anatomic studies of autopsy cases by Crutcher and Daniel⁽²⁾, and McLachlin and Paterson⁽³⁾ have indicated that the major source of pulmonary emboli is from the pelvic veins above the usual site of ligation of the superficial femoral vein.

These anatomic studies are now substantiated by clinical experience. In 1949, Allen⁽⁴⁾ reported that in a group of 1,500 patients who had therapeutic superficial vein interruptions for thrombophlebitis, there were 7 cases of fatal pulmonary emboli following ligation; in 1951 Ravdin and Kirby⁽⁵⁾, in their five year report on thrombo-embolic disease, described 3 patients with phlebotrombosis who had pulmonary infarctions following superficial femoral ligations, but who recovered on heparinization. Recently, Erb and Schumann⁽⁶⁾ have reported an interesting study of 100 consecutive cases of fractures of the femoral neck. Alternate patients

had bilateral superficial femoral vein ligations prophylactically; there was no difference in the incidence of pulmonary embolism in either the ligated group of 50 patients or the control group of 50 patients; the only case of pure fatal pulmonary embolism examined at autopsy was in the ligated group. We have recently reported⁽⁷⁾ that 5 out of 7 patients who had venous ligations during the past year at Duke Hospital had pulmonary emboli following venous ligation, with one fatality; whereas during the same year 43 other patients who were treated with anticoagulants only had no emboli during or following therapy.

Hence, it may be of benefit to look upon thrombophlebitis as a localized manifestation or complication of a generalized state of hypercoagulability of the blood, occurring most often in the pelvis and, secondly, in the peripheral portions of the lower extremities. In addition to the primary change of hypercoagulability, there are accessory factors common to all thrombotic diseases—namely, venous stasis and intimal damage—which may contribute to the localized process.

Currently, the treatment of choice is anticoagulant therapy. This serves to change the blood from a state of hypercoagulability to one of marked hypocoagulability and prevent further propagation of the thrombus in the localized process; it has also been found to reduce intimal damage by preventing the chain reaction of adherence of platelets to the injured endothelium, thrombus formation, organization, recanalization with subsequent incompetent valves, and significantly diminished vein lumen. Venous ligation, on the other hand, will not influence the hypercoagulability; it does cause intimal damage with frequent thrombus formation proximal to the point of ligation; and, in addition, it increases the stasis factor distal to the point of ligation in a vein that is already taxed by incompetent valves and a smaller effective lumen. Finally, clinical experience has shown that there is no justification for a feeling of security from fatal embolism following superficial femoral vein ligation.

Physiology of coagulation

In order to understand the mode of action of the anticoagulant drugs, the basic coagulation equation will be reviewed in its simplest form:

1. K Vitamins + Liver - - - -> Prothrombin
2. Prothrombin + thromboplastic substances + Calcium ions - - - -> Thrombin
3. Fibrinogen + Thrombin - - - -> Fibrin

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The K vitamins are absorbed from the gastrointestinal tract and in the liver help to synthesize the protein prothrombin which is released into the circulation and is normally present in a concentration of 20 mg. per 100 cc. of plasma. In the presence of thromboplastic substances—that is, from tissue juices following injury—and in a medium containing even the lowest concentration of calcium ions compatible with life, the prothrombin is converted to another protein “thrombin.” Thrombin acts immediately to convert the serum protein fibrinogen into its insoluble form, “fibrin,” which is the meshwork of the subsequent blood clot.

Comparison of Heparin and Dicumarol

At the present time, there are two widely accepted and well evaluated anticoagulant drugs, heparin and Dicumarol.

Heparin is a biologically assayed complex polysaccharide whose immediate anticoagulant action is twofold: (a) It bears a strong negative electrical charge and somehow blocks the conversion of prothrombin to thrombin; (b) In conjunction with a serum albumin co-factor it is antithrombic and blocks the enzymatic action of thrombin in the conversion of fibrogen to fibrin. Its action is reversed immediately by (a) protamine sulfate, which bears a strongly positive electrical charge which neutralizes the negative charge of heparin; (b) toluidine blue, which precipitates the heparin.

Dicumarol, on the other hand, acts by blocking the K vitamin synthesis of prothrombin in the liver; it therefore serves to lower the prothrombin content of the serum and (a) makes less prothrombin available for conversion to thrombin; (b) deprives platelets of the thrombin required to activate the precursor of thromboplastin. However, contrary to the immediate action of heparin, it takes from 36 to 72 hours for Dicumarol to lower the prothrombin level to the effective therapeutic zone (10 per cent to 30 per cent of normal); below 10 per cent it is dangerous and may cause serious hemorrhage.

Advantages and disadvantages

The advantages and disadvantages of each drug are as follows:

Heparin is rapidly effective and relatively nontoxic. Its action is rapidly reversible with protamine sulfate and toluidine blue, and its effect can be readily followed by the simple

modified Lee-White three tube clotting test. However, it is expensive, it has to be administered parenterally, and the intramuscular form is moderately painful.

Dicumarol, on the other hand, is inexpensive and can be administered orally in tablet or capsule form. It is, however, slow acting and the danger of hemorrhage is greater than with heparin, especially in patients who are not carefully followed. Its action should be carefully followed by daily prothrombin determinations where special laboratory facilities are available. Finally, its action is not as readily reversible, requiring the administration of vitamin K (especially K₁ emulsion and K₁ oxide) and whole blood transfusions.

Other Drugs

Numerous new drugs are being evaluated; the majority are related to Dicumarol or have a similar mode of action, among them, Tromexan, Phenyl-indan-dione (which are faster and shorter acting drugs than Dicumarol) and Cumopyran (which is faster but longer acting than Dicumarol. Paritol is a synthetic heparinoid made from seaweed whose action is similar to that of heparin; it is currently being investigated in various laboratories, including ours.

Methods of administering Heparin (All doses given for the average 70 kilo patient.)

1. Aqueous heparin 50 to 75 mg. given intravenously every four hours. This method was used initially, but it is impractical, and uncomfortable to the patient to have a venopuncture every four hours, demanding on the intern, especially during long operations on other patients and during meager sleep hours.

2. Aqueous heparin, 50 to 75 mg. given intramuscularly every four hours. This may be given by the nurse, but is moderately painful for the patient and may result in sterile abscesses.

3. Aqueous heparin administered by the same methods as in 1 and 2 but given in doses of 100 to 125 mg. every eight hours. In addition to the above disadvantages, the excretion of the heparin is so rapid that during the last three to four hours of the eight hour period, there is no effective prolongation of the clotting time.

4. Constant intravenous drip in infusion fluid. This solution is made up of 150 mg. of heparin in 1000 cc. of infusion fluid (five per cent dextrose, saline) and allowed to

drip at the rate of 25 drops per minute, which will last for 10 to 12 hours and prolong the clotting time to about 25 minutes. When one bottle is used up, it is immediately replaced by a similar one. We have found this method of advantage in both children and adults who are to have constant intravenous drips for other purposes; it has also helped diminish the phlebitis incurred from the polyethylene catheters inserted for the constant drips. However, the disadvantages are as follows: It is a most uncomfortable procedure; the bottles containing the heparin have to be clearly marked and the nursing staff of all shifts warned not to let the drip proceed any faster than 25 drops per minute; occasionally uninformed nurses have mistaken the drip for the usual intravenous alimentation and opened up the drip so that the patient received the 150 mg. of heparin intravenously in a period of an hour.

5. Repository forms given intramuscularly with adjuvants. The forms available currently known to us are: (a) heparin in Pitkin's menstruum; (b) heparin in gelatin-dextrose (Upjohn and Lederle). Heparin in Pitkin's menstruum was evaluated in a large series of our cases over an 18 month period and found to be ineffective in prolonging the clotting time of the majority of the patients to the desired level (30 minutes or more in our laboratory). We have no explanation for this lack of response. On the other hand, the heparin-gelatin-dextrose has been most effective in producing the desired therapeutic effect and the details of the manner in which it is used will be described below.

Methods of Administering Dicumarol

The recommended Dicumarol dosage schedule for a patient who has a prothrombin level of 100 per cent prior to therapy is 300 mg. the first day, 200 mg. the second day (estimated prothrombin level 50 to 90 per cent), 100 mg. the third (estimated prothrombin level 35 to 50 per cent), and a daily maintenance dose of about 50 mg. thereafter (estimated prothrombin level 10 to 30 per cent). Only a very small number of more than 225 patients, however, responded in such an orderly fashion.

We have found it of *paramount* importance to obtain a control prothrombin level before *any* anticoagulant therapy is given. Some patients with acute thrombophlebitis have had an initial prothrombin level of

around 50 per cent, and certainly the indiscriminate administration of 600 mg. of Dicumarol to such patients over a three day period would have resulted in serious hemorrhage. It is equally important to get daily prothrombin determinations until the patient has been well regulated and kept on a steady maintenance dose for at least one week. We have in our files numerous case histories of hypersensitive individuals who started out with an initial prothrombin level of 100 per cent, and following the first dose of 300 mg. dropped down, in extreme cases, to below 10 per cent, but more commonly to around 30 per cent. Certainly in such cases a second dose of 200 mg. is unwarranted. Maintenance doses have also varied from 25 mg. every fourth or fifth day to 100 mg. every day. Once the clinician becomes well acquainted with the individual's response, it is possible to discharge the patient on the maintenance dose with instructions to return semi-weekly at first, then weekly and even bi-weekly later on. However, the patient should be clearly and explicitly cautioned about the signs and symptoms of hemorrhage resulting from overdosage of Dicumarol, and be required to discontinue the drug and return immediately (day or night) to the hospital.

This individualistic response to Dicumarol makes it a drug that warrants caution and experience in its administration; too often the cause of Dicumarol poisoning is a result of inexperienced or negligent handling.

Contraindications for Anticoagulant Therapy

We have encountered only two contraindications to the use of heparin: (a) in a patient with thrombophlebitis who is actively bleeding from another site due to another disease—the reason here is obvious; (b) following transurethral prostatectomies where the urinary stream appears to wash the formed clots and promote prolonged bleeding in the heparinized patient—we have recommended elsewhere⁽⁷⁾ that these patients be submitted to ligation of the inferior vena cava.

Dicumarol is definitely contraindicated in patients with hepatic or renal insufficiency, or in patients preoperatively or antepartum; in those instances heparin may be and has been used safely. Jaimet⁽⁸⁾ has reported 16 surgical patients and 90 obstetrical patients with prothrombin levels in the therapeutic

range who were treated with Dicumarol at the time of operation and delivery respectively without any instances of abnormal bleeding. However, we feel that heparin, whose effect can be reversed immediately, is safer to use than Dicumarol in these instances.

Length of Therapy

The anticoagulant therapy has been continued from about 8 to 15 days in the majority of our cases. About 12 days is the average; this is the approximate length of time required for fibroblastic proliferation and fixation of the clot to the vein wall in the process of organization. This period has also been found to be adequate clinically for the prevention of recurrences following the discontinuance of anticoagulant therapy. It is important to begin to get the patient up about the sixth day and work up to moderate ambulation during the time that he is "protected" by the anticoagulation; no instances of embolism have been noted by us during this ambulation program during heparin or Dicumarol therapy.

Routine of Anticoagulation Preferred on the Surgical Service

The following is the usual routine used in the department of surgery:

As soon as the diagnosis of thrombophlebitis is made or suspected, the anticoagulant staff is notified, a member thereof sees the patient with the intern and student, and the course of therapy is planned.

1. Immediately a three tube modified Lee-White clotting test and a prothrombin determination are done before *any* therapy is given. The clotting test is done with three dry Wassermann tubes, a dry 10 cc. syringe, and a 20 gauge needle. Three cubic centimeters of whole blood is withdrawn, and 1 cc. of blood added to each of the three tubes labeled 1, 2, 3, respectively. Three minutes after blood is first noted in the syringe tube, tube 1 is tipped every 30 seconds until a small gel-like clot is noted in the tube; tube 2 is then picked up and treated similarly, and finally tube 3. The clotting times of all three tubes are recorded, and the average of tubes 2 and 3 is used as the average clotting time.

It is most important to use three tubes because, particularly in heparinized blood, there appears to be a marked difference between the first and the other two tubes. The techniques described above are certainly not

free from technical errors of coagulation technique; however, the same error is made consistently in all cases so that the data may be evaluated; the routine has been set up to be as practical as possible with the least possible variation in the standard errors. Clotting times of over 60 minutes are recorded as 60 plus, and the determination is not carried any further. The prothrombin levels are determined by a modification of the one-stage Quick⁽⁹⁾ test and are effected in the blood chemistry laboratory.

Not only is it important to get these initial "control" determinations prior to any therapy for the reasons discussed earlier under "Methods of Administering Dicumarol," but also because heparin may demonstrate an effect on the prothrombin level by giving an abnormally low reading in the heparinized patient and offset the Dicumarol therapy; similarly, if Dicumarol has prolonged the prothrombin level to around 10 per cent, the clotting time may also be abnormally prolonged. Hence it is important to get a firm footing at the start.

2. As soon as the "control" clotting time is completed, and providing the average clotting time is less than 15 minutes (we have never encountered a case of thrombophlebitis with a prolonged clotting time), an initial dose of 50 to 75 mg. of aqueous heparin is given intravenously, and concomitantly 400 mg. of heparin-gelatin-dextrose (Upjohn's Depo-Heparin or Lederle's Repository Heparin) *without* vasoconstrictors intramuscularly in the gluteal region. The heparin-gelatin-dextrose (H.G.D.) is absorbed slowly; the desired prolongation of the clotting time to or more than 30 minutes is not reached until about four to six hours following administration, and hence it is desirable to give the dose of aqueous heparin intravenously for immediate effect to tide the patient over till the H.G.D. takes effect. Some clinicians state that it is desirable to prolong the clotting time to two or four times the "control" value. Hence if the control value were four minutes, as it often is with thrombophlebitic patients, a prolongation to 8-16 minutes is still inadequate; hence we have elected to use 30 minutes or longer as the desired prolongation of the clotting time. The H.G.D. is given in the gluteal muscle only, because elsewhere it has proven to be more than moderately painful. The therapist is warned not to warm the special cartridges supplied in

Table 1
Anticoagulant Sheet Surgical Service

Name:						History No.			
Weight: 160 lbs.		Age: 48		Sex: M		Race: W			
Diagnosis: 8th day post-operative resection of carcinoma of the sigmoid with right calf pain, positive Homan's sign. No evidence of embolism.									
Complications while on anticoagulants: Embolus () Thrombus () Hemorrhage ()									
Date of Complication:									
Date		Coagulation Time				Heparin		Prothrombin	Dicumarol
Day	Time	Tube 1	Tube 2	Tube 3	Average	Type	Dose (mg.)	Level	Dose (mg.)
12-1-51	3:45 p.m. 4:00 p.m.	3'	4'	5'	4½'	i-v aqueous i-m Depo	75 400	18 sec. 100%	300
12-2-51	11:00 p.m. 9:00 a.m. 9:45 a.m.	28' 16'	42' 28'	46' 32'	44' 30'	i-m Depo	200	19½ sec. 85%	200
12-3-51	3:00 p.m. 9:00 p.m. 9:00 a.m. 9:45 a.m.	25' 26' 12'	34' 36' 18'	42' 44' 21'	38' 40' 19½'	i-m Depo	400	25½ sec. 37%	100
12-4-51	3:00 p.m. 9:00 p.m. 9:00 a.m. 9:45 a.m.	28' 60+ 18'	40' 60+ 24'	48' 60+ 26'	44' 60+ 25'	Discontinue		40 sec. 14%	25
12-5-51	9:00 a.m.							32 sec. 22%	50
12-6-51	9:00 a.m.							34 sec. 19%	50
12-7-51	9:00 a.m.							37 sec. 16%	50
12-8-51	9:00 a.m.							26 sec. 36%	100
12-9-51	9:00 a.m.							29 sec. 28%	75
12-10-51	9:00 a.m.							34 sec. 19%	50
12-11-51	9:00 a.m.							37 sec. 16%	50
12-12-51	9:00 a.m.							33 sec. 20%	Discontinue
12-13-51	9:00 a.m.							29 sec. 30%	
12-14-51	9:00 a.m.							21 sec. 56%	Discharge

hot water, for any injection of excessively warm material is liable to produce sterile abscesses; if the H.G.D. has been stored at room temperature (as is suggested) then usually no further warming of the cartridge will be necessary, especially if the bubble trapped in the solution rises to the top of the solution; if the bubble does not move freely, then the cartridge may be warmed in tap water at approximately body temperature.

3. As soon as the result of the prothrombin test is available, Dicumarol may be administered as follows:

300 mg. if the prothrombin level is 80 to 100 per cent.

150 to 200 mg. if the prothrombin level is 50 to 80 per cent.

Dicumarol is not to be given if the initial prothrombin level is less than 50 per cent. The function of the liver should be investigated as thoroughly as possible and the patient maintained on heparin therapy only.

4. The clotting time is checked six to eight hours following the initial injection of H.G.D., at which time the "peak" in clotting time prolongation may be determined. The effect of H.G.D. usually lasts from 16 to 24 hours. After the six to eight hour check we

have found it desirable at this hospital to have the clotting times checked thereafter at 9 a.m., 3 p.m., and 9 p.m. If at any check the average clotting time is 35 minutes or less, an extra 200 mg. of H.G.D. is given (provided more than 12 hours have elapsed since the last dose); if the average clotting time is 22 minutes or less, a full 400 mg. of H.G.D. is given. The figures of 35 minutes and 22 minutes have been picked arbitrarily from experience with the drug; it is found that the "booster" dose takes full effect after four to six hours, at which time it prevents any further drop in the clotting time.

5. The daily prothrombin determinations are drawn with the 9 a.m. clotting time test, thus saving the patient an extra venopuncture. The daily dosage schedule is outlined above under "Methods of Administering Dicumarol."

6. As soon as the prothrombin level drops to below 30 per cent, the heparin and the clotting times are discontinued and the patient is maintained on Dicumarol alone, with daily prothrombin level determinations.

7. In hospitals where facilities for prothrombin determinations are not available, Dicumarol therapy should not be administered. The patient should be treated with

H.G.D. only; the average individual will require about 400 mg. of H.G.D. per day.

It is of interest that, early in our experience with this drug, the H.G.D. with vasoconstrictors (ephedrine and epinephrine) was used in conjunction with the H.G.D. without vasoconstrictors. The use of the preparation with vasoconstrictors was discontinued for two reasons: (a) because it confused the interpretation of the clotting times by producing a double humped clotting curve over a 24 hour period; (b) because in cardiac patients, as in thrombophlebitis, it was thought undesirable to administer even minute amounts of the vasoconstrictors epinephrine and ephedrine. On the other hand, Crane⁽¹⁰⁾, in Boston, prefers the H.G.D. with vasoconstrictors for more prolonged action.

(a) To reverse the effect of heparin, 50 mg. of protamine sulfate is given intravenously over a one minute period. The clotting time is checked 10 minutes following injection of the protamine, at which time the average clotting time should be less than 12 minutes. The clotting time is checked every three hours, at which time, if the average clotting time is more than 12 minutes, the dose of protamine sulfate (50 mg. given intravenously) is repeated.

Protamine reverses heparin milligram per milligram, but it is undesirable to give more than 50 mg. at one time. Hence if the patient were receiving 50 mg. of heparin every four hours intravenously, a single dose of the protamine would be all that would be necessary; however, if the patient had received 400 mg. of H.G.D. in his gluteal region, it would be necessary to repeat the doses of protamine sulfate every three hours as outlined above.

(b) To reverse the effect of Dicumarol, the following are administered: 500 cc. of whole blood; 50 mg. of Synkovite (or Hykinone) every four hours until the prothrombin level is above 80 per cent. Vitamin K₁ emulsion and K₁ oxide are much more effective experimental drugs than Synkovite; though we have a supply of these drugs in our laboratory, they are not available on the market.

9. Table 1 is an example of a typical case of thrombophlebitis treated by anticoagulant therapy.

Summary

1. Anticoagulant therapy appears to be the treatment of choice for patients with

thrombophlebitis. Some pathologic and physiologic aspects of thrombophlebitis are presented and discussed.

2. The physiology of coagulation and the effect of the anticoagulant drugs, heparin and Dicumarol, are reviewed.

3. The methods of administration, the precautions, the contraindications in the use of heparin and Dicumarol are discussed. The preferred routine of anticoagulation used on the Surgical Service at Duke Hospital is presented.

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Patients incline toward a somber prognosis; against their will, they harbor undue apprehensions and pass from anxiety to fear. Fear has no part in the normal equipment of a physician, still less of a surgeon, but its depth and extent among patients are not sufficiently realized. It is seen in the reaction of the public to heart affections, which they persist in regarding as peculiarly dangerous to life. The truth is that there are only a few varieties of heart disease which carry the risk of sudden death. Not only the risk but the resultant disability are constantly exaggerated. Following a coronary thrombosis, a man will inquire about a further attack; if not, he and his relatives constantly think about it, and, in fairness, they should be told that this is unlikely to happen, though not impossible. Many patients, a few months after such an attack, are able and wise enough to forget about it. There exists, too, the unjustified idea that exertion in cardiac cases must be restricted because it entails danger. Modern medical opinion allows children with congenital malformations of the heart to participate in any and every form of activity which they can undertake without distress. It does them good, not harm, and these children will not hurt themselves. Many adults might follow with advantage the same rule in regard to their handicap.—Sir John Parkinson: *The Patient and the Physician*, *Ann. Int. Med.* 35:308 (Aug.) 1951.

A STUDY OF TWENTY-THREE CASES OF CIRCUMSCRIBED SOLITARY LUNG LESIONS

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Improvement in the rate of cure of carcinoma of the lung can be accomplished, with our present methods of treatment, only by earlier diagnosis. By means of a simple inexpensive x-ray examination, tumors of the lung can be more easily detected in the asymptomatic stage than can those of any other internal organ. With extensive public health surveys, and the inclusion of a chest roentgenogram as part of the general physical examination, a greater number of early cancers of the lung are now being referred to the surgeon for treatment. In the past three years in this clinic, 23 patients in whom cancer was suspected because of asymptomatic, circumscribed, solitary x-ray shadows have been treated surgically. The results of this study form the basis for this report.

Material and Data

The 23 patients comprising the basis for this study were all adults, and none of the lesions were the cause of symptoms. The abnormalities were found either in public health chest surveys, or as a result of a chest film made as a part of a general health evaluation. Five cases of solitary circumscribed tuberculous lesions were excluded from the study, as preoperative examinations done at our state sanatoria revealed positive cultures for the tubercle bacilli. Only those lesions that were solitary and circumscribed were included.

In table 1 the pertinent data are outlined in this group of 23 cases. It is most striking to note that 13 of the lesions were neoplastic while 10 were tuberculous. Eight of the 13 neoplasms were bronchogenic carcinomas, 3 were bronchial adenomas, 1 was probably a metastatic carcinoma, though the patient is asymptomatic 18 months after lobectomy, and 1 was a bronchial cyst.

Table 2 summarizes the results of the tuberculin skin tests in 21 of the 23 cases. The number of positive and negative skin

Table 1
Data on 23 Cases of Asymptomatic Discrete
Pulmonary Lesions

Sex	Age	Diagnosis
M	44	Bronchogenic carcinoma
M	53	Bronchogenic carcinoma
M	42	Bronchogenic carcinoma
F	61	Bronchogenic carcinoma
F	43	Bronchogenic carcinoma
M	46	Bronchogenic carcinoma
M	42	Bronchogenic carcinoma
F	57	Bronchogenic carcinoma or possibly metastasis from uterine carcinoma
M	58	Bronchial adenoma
F	48	Bronchial adenoma
F	43	Bronchial adenoma
M	38	Bronchial cyst
F	40	Metastatic melanosisarcoma
M	39	Tuberculoma
F	25	Tuberculoma
M	28	Tuberculoma
M	50	Tuberculoma
F	52	Tuberculoma
F	20	Tuberculoma
M	37	Tuberculoma
F	28	Tuberculoma
M	47	Tuberculoma
F	51	Tuberculoma

Table 2
Sensitivity to Tuberculin (O.T.) in 21 Cases of
Round Asymptomatic Lung Lesions

	No.
Tuberculomas with positive tuberculin	8
Tuberculomas with negative tuberculin	2
Neoplasms with positive tuberculin	9
Neoplasms with negative tuberculin	2

tests is almost the same in the neoplastic as in the tuberculoma group. In most of this same group histoplasmin, blastomycin, and coccidioidin skin tests were done, but the findings were not helpful in any of the cases.

Figures 1 and 2 show the roentgenograms of two patients with similar x-ray shadows. One lesion was a bronchogenic carcinoma, and the other was a tuberculoma.

Discussion

Attempts to obtain an accurate preoperative diagnosis of circumscribed asymptomatic lung shadows are usually unrewarding. To save an occasional patient from an operation it is necessary to carry out careful studies, paying particular attention to the intestinal tract, genitourinary tract, and osseous system for evidence of metastatic or primary malignant growths. Tests for the presence of or sensitivity to infectious agents are done. The results of the tuberculin test have been mentioned. It is of value only in that a negative reaction may in most instances be construed as evidence in favor of a neoplasm.

More complete x-ray studies of the lesion

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Fig. 1. Asymptomatic apical lesion in a 37 year old white man. Exploration of the chest and excision of the lesion showed this to be a tuberculoma.



Fig. 2. Asymptomatic apical lesion in a 44 year old white man. Exploration of the chest and excision of the lesion showed this to be a bronchogenic carcinoma.

give information that may rarely indicate the diagnosis. Fluoroscopic examinations of the chest should be done, particular attention being paid to the location of the mass and associated obstructive emphysema. Planography may delineate in more detail the roentgen characteristics of the lesion. Evidence of calcium within the area may be interpreted as almost positive evidence that the mass is tuberculous in origin. In some instances planographic examination of both lungs will demonstrate other similar circumscribed lesions that might be missed on an ordinary x-ray plate.

Bronchoscopic examination, although necessary in order to make certain that the major bronchi are normal, adds very little to the diagnosis. Even careful cytologic study of secretions from the bronchial tree is unrewarding in these lesions.

With few exceptions the diagnosis of the asymptomatic lesions of the lung is obtained only by exploratory thoracotomy. On inspection of the tumor at operation the diagnosis is nearly always evident. If the nature of the tumor is in doubt, it can be excised either by a wedge resection or as a segmental resection for microscopic examination. In the

event the study by the pathologist shows the lesion to be tuberculous or to be a benign tumor, no further surgery is needed. In the case of a carcinoma, further and more adequate excision is then done.

Because most physicians have an unwarranted fear of the risk of chest operations, there may be some hesitancy in advising the patient with an asymptomatic lung tumor to have a thoracotomy. The risk and postoperative morbidity of chest operations is no greater than that encountered in exploring the abdomen. A palpable abdominal mass is considered by nearly all physicians as indication for exploration and is recommended without hesitancy. There is no logical reason why a tumor of the chest demonstrated by x-ray should not be handled in the same way.

In nearly every instance of circumscribed asymptomatic chest tumors the diagnosis lies between tuberculosis and neoplasm⁽¹⁾. It is not within the scope of this paper to discuss the therapy of circumscribed well walled-off tuberculous lesions. In most instances these lesions are, in fact, tuberculous abscesses and are a potential danger to the patient⁽²⁾.

Surgical excision, in the opinion of many observers⁽³⁾, is the treatment of choice.

Summary

In a series of 23 patients with asymptomatic pulmonary shadows, 13 were found at operation to have a neoplasm. Eleven new growths were malignant lung tumors.

From experience obtained from this study, it is concluded that exploratory thoracotomy is the only reliable method of arriving at the proper diagnosis.

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The public health laboratory has vast and urgent fields to investigate, and, besides providing for its prescribed routine control tests, it must be designed to do research. I often wonder why the public health laboratory is doing its utmost to creep into the field of hospital and clinical diagnostic work, in the narrowest meaning of the term. That sort of work can only be done properly with close contact with the clinician and his individual patient and it is clearly far outside the field of the public health laboratory. I hope it is not a political maneuver known as "the thin edge of the wedge." I also hope it is not due to lack of inspiration and ability to define their own problems clearly. It is, to a considerable measure, due to a failure of the hospitals to do their bacteriology properly. The question has worried me a great deal and I believe the situation would be vastly improved by discouragement of public health laboratory reports as they are published now. These reports are largely a dull and uninformative enumeration of the thousands of specimens received for examination, and the importance of the laboratory would seem to be judged by the number of ciphers in its grand total of tests performed. Even the most costive-minded statistician must be bored by these figures. Substitute for this an informed discussion of problems and judge the importance of the laboratory by the range of its excursions and the depth of its penetration into the unknown or little understood influence contributing to community health.—Murray, E. G. D.: *The Emergency for Research in Unexplored Fields of Public Health*, *Canad. M.A.J.* 66:277 (March) 1952.

ANEURYSM OF THE POPLITEAL ARTERY

A Case Report

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An aneurysm of the popliteal artery is usually either arteriosclerotic or syphilitic in origin⁽¹⁾. Recently, at the North Carolina Baptist Hospital, a popliteal aneurysm of traumatic origin was successfully treated, using the principles of endoaneurysmorrhaphy, as originally advocated by Matas⁽²⁾ in 1888, with prior lumbar sympathectomy, as suggested by Bird⁽³⁾ in 1935.

Report of a Case

A 54 year old white male entered the hospital on January 15, 1952, with a complaint of "pain in the right calf, and numbness and a cold feeling in the right foot." He dated the onset of his troubles to April, 1949, when, while stepping backward, he fell, twisting the right knee and dislocating the fifth cervical vertebra. Severe pain began immediately in the right knee and persisted for several months; it was of such a degree as to force him to walk with a limp. The dislocated cervical vertebra was reduced with halter traction. In November, 1949, seven months after the original injury, he first noted a small pulsating mass in the right popliteal fossa. Soon thereafter, he began to note intermittent swelling of the right ankle and pain in the right calf on fast walking or after long periods of standing. The mass slowly increased in size, without the appearance of other symptoms.

Five days prior to admission, while the patient was walking briskly, he had a sudden severe cramping pain that extended from the right calf to the toes. Concomitantly, the leg became numb and unstable. A few minutes later he noted that the foot was cold to touch and that the toes were blue. As the pain, coldness, and blueness persisted, he consulted a physician some 12 hours later. A right lumbar sympathetic ganglion procaine block was performed, resulting in com-

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plete relief of the pain, color changes, and temperature abnormality. However, as numbness of the toes and intermittent claudication remained, hospitalization was arranged for further therapy.

Past history, family history, and a review of symptoms were non-contributory to the present illness.

Physical examination

On examination the blood pressure was 190 systolic, 110 diastolic, the pulse 88, and respiration 18. The patient was a robust, slightly obese, middle aged white man who was apparently resting comfortably in bed. Incidental abnormalities noted, in addition to the obesity, included a precordial blowing systolic murmur, a small right indirect inguinal hernia, and external hemorrhoidal tags. In the lower half of the right popliteal fossa was an expansile pulsating fixed mass, which measured 8 cm. long and 6 cm. wide. There was no thrill, murmur, or detectable collateral vessels. The right calf was mildly endurated, and measured 2 cm. larger in circumference than the left. Pulsations in the anterior and posterior tibial arteries were normal, but completely absent in the dorsalis pedis. The entire foot and all of the toes were cool and slightly moist, but of a normal color. There were no objective sensory changes.

Accessory clinical findings

The urinalysis was negative. Blood studies revealed a hemoglobin of 12.6 and 10,000 white blood cells, with a normal differential. The nonprotein nitrogen was 35. mg. per 100 cc. Kahn tests on both serum and spinal fluid were negative. A chest roentgenogram showed no abnormality. An electrocardiogram was interpreted to show "Myocardial disease, as is frequently seen with coronary sclerosis."

Course in hospital

On the day after admission a femoral arteriogram was performed for evaluation of the collateral circulation, but results were inconclusive. The following day a right lumbar sympathectomy was performed under spinal anesthesia, with removal of the first, second, and third lumbar sympathetic ganglia. Over the next two days the right foot and toes became warmer and dry, and the subjective numbness decreased. Pulsations became detectable in the dorsalis pedis artery.

On the sixth postoperative day the popliteal space was explored, under spinal anesthesia. As a safety precaution, a pneumatic tourniquet was placed about the upper thigh; it did not become necessary to inflate it at any time. A long S-shaped incision was made, centered over the aneurysm, and skin flaps developed. The gastrocnemius muscle was split in the direction of its fibers, and retracted, to expose the wall of the aneurysm. The peroneal nerve was lateral to the mass; the tibial nerve, which stretched tightly across the mass, was carefully dissected free. The vein was densely adherent to the proximal artery, aneurysm, and distal artery. Consequently, the artery and vein were not separated, but were freed "en bloc" from the surrounding tissue superiorly and inferiorly to the aneurysm. The arterial wall was quite elastic, and did not contain any arteriosclerotic plaques. A Pott's ductus clamp was applied to the vessels at either end of the aneurysm, and the aneurysm wall incised widely. The sac contained a large laminated clot, which was shelled out digitally. The afferent and efferent arteries were the only tributaries to the sac.

Release of the distal clamp allowed only a trickle of blood to enter the sac. Therefore, it was decided that endoaneurysmorrhaphy would be safer than excision, with its attendant necessary damaging of collaterals. Two layers of continuous 00000 silk suture were used to close each of the two openings. No bleeding occurred when the occluding clamps were released. Part of the wall of the aneurysm was trimmed off, and the dead space obliterated by plication of the wall in three layers. The wound was closed in layers with interrupted silk sutures, without drainage. A light weight posterior splint was applied the full length of the leg, to prevent angulation and blockage of the collaterals.

Postoperatively, the head of the bed was slightly elevated and the foot kept uncovered. The former was to provide better circulation, the latter to keep the foot cool and metabolism therein at a minimum. For the first two postoperative days the toes on the involved side were cooler than the contralateral ones. By the seventh day the entire right extremity was warmer than the left, and the patient was able to walk. The wound healed *per primum*, and the patient was discharged on the ninth postoperative day.

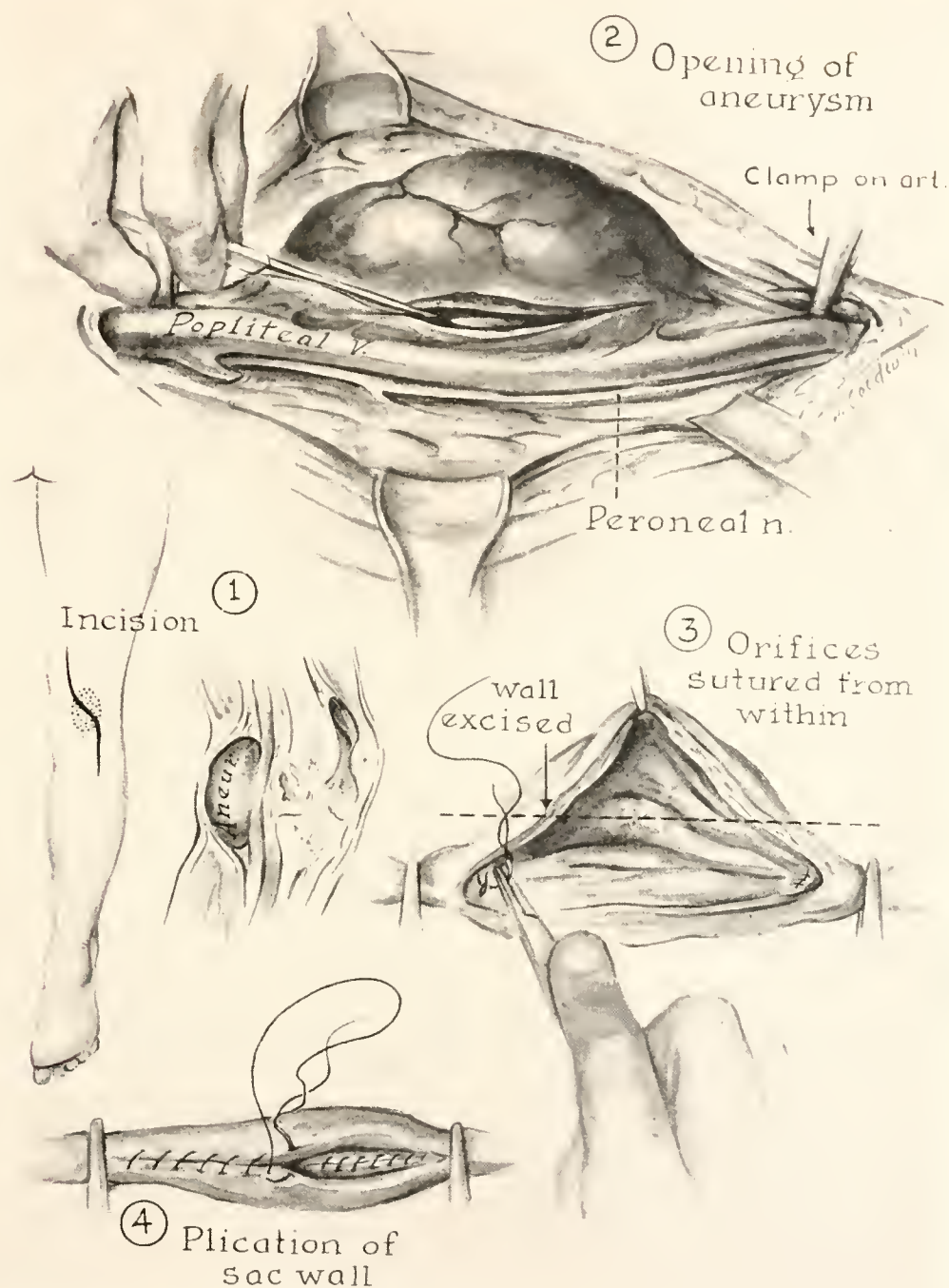


Fig. 1. Insert No. 1 indicates the location of the aneurysm, and the placing of the incision. No. 2 shows the aneurysmal sac being opened. Note that the artery is occluded both proximally and distally to the aneurysm. No. 3 shows the empty sac, after the clot had been shelled out. The distal orifice has been sutured, the proximal orifice is being sutured. No. 4 shows the insertion of the third layer of plicating sutures.

Comment

Endoaneurysmorrhaphy is based on the principle of obliteration of the aneurysmal sac, with the preservation of all collateral circulation. It is quite apparent that complete removal of the sac accomplishes a cleaner and more desirable effect locally, as all of the sac remaining must eventually be disposed of by an inflammatory reaction. However, dissecting out the sac will destroy collateral vessels that run close to the sac, as well as those that join either main artery within 1 to 2 cm. of the aneurysmal dilatation, and so must be sacrificed in ligating the artery. In the case being reported it was noted that a collateral vessel emerged from the efferent artery about 5 mm. above the sac; proximal ligation of the artery would surely have destroyed this important vessel.

Sympathectomy, as an aid to endoaneurysmorrhaphy, was first performed by Bird in July, 1934, and was based on the experimental work of Mulvihill and Harvey⁽⁴⁾. They had shown that lumbar ganglionectomy stimulated collateral circulation and prevented spasm of the arteries, thus increasing the blood supply of the extremity. This procedure has proven so beneficial that it is now practically a requisite preliminary for arterial surgery of the extremities.

Summary

A case report of successful repair of a traumatic popliteal aneurysm by means of lumbar sympathectomy and endoaneurysmorrhaphy is presented.

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THE MANAGEMENT OF MARITAL STERILITY IN GENERAL PRACTICE

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At least 10 per cent of all marriages are involuntarily childless. A great majority of these couples naturally turn first to their most sympathetic and dependable counselor—the family physician. His training, knowledge and acumen with regard to infertility usually determines the outcome, whether he manages the entire problem or refers part or all of it to a specialist. The present discussion attempts to consider the fundamental procedures involving the etiology, diagnosis, and treatment of infertility by the general practitioner.

Investigation of marital sterility demands, in the main, three approaches: (1) a thorough history and physical examination of both husband and wife to exclude poor health on the part of either mate; (2) an appraisal of the male reproductive system, including examination of the semen; (3) an investigation of the female reproductive system.

Orientation of Husband and Wife

Orientation of the patient should precede any investigation of sterility, the success of which depends largely upon marital understanding and cooperation. Ideally, both husband and wife should be present at the initial visit for discussion, in simple language, of the following: the factors essential to fertility; the basic scheme for investigating these factors; the importance of husband and wife considering themselves as a single unit; the relation and importance of their cooperation; the time and expense of any productive investigation. Individual conferences, on the other hand, may disclose pertinent facts which might be suppressed in a joint discussion, and should not be neglected. Patient orientation may also be advanced by recommending any of several lay publications providing excellent indoctrination for both husband and wife. An excellent example is Hamblen's *Facts for Childless Couples* (Charles C Thomas).

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Basic Examination

Female barrenness, to be sure, is centered in the pelvis, but the cause often may be found only by a thorough history and a careful general examination. Constitutional factors or influences affecting the female genital system must be ruled out. Special emphasis should be placed on occupational hazards, past illnesses, duration of marital relations, sex habits, menstrual disturbances, other endocrine disorders, and foci of infection. A thorough pelvic examination to exclude any apparent gross abnormality of the pelvis is in order. Many factors cannot be discovered by bimanual examination. These will be considered later.

The basic study should include a blood count, serologic study, and urinalysis. Other tests that may be required are a basal metabolic rate, pertinent x-ray studies, and identification of the Rh blood status and blood group.

Statistics indicate that 40 to 50 per cent of all infertile marriages are due exclusively to male deficiency. For this reason, most observers agree that the husband should be evaluated as soon as possible, though one might consider waiting for a more direct, simple and less expensive method of testing the husband through postcoital examination of the wife—to be discussed later. When the former decision is made, history, examination, and laboratory data are obtained, adhering to the principles previously outlined.

It should be kept in mind that, biologically, husband and wife must be evaluated mutually, not singly. As with the female, male sterility involves multiple psychosomatic and environmental influences, any of which might be the cause of the difficulty. The "not much can be done for the husband" attitude must be condemned and replaced by conscientious attention to these multiple influences.

Evaluation of the Male

Examination of the genitalia should include the penis, testes, epididymides, vasa differentia, prostate, and seminal vesicles, with special emphasis on ruling out hypospadias, hypogenitalism, neoplasms, and inflammation, acute or chronic, with or without obstruction. When indicated, special procedures such as testicular biopsy, epididymovasotomy, or panendoscopic examination are best performed by a competent urologist.

Evaluation of the semen: Specimens for

evaluation of the semen are best obtained by masturbation or coitus interruptus into a clean glass receptacle. Care should be taken not to lose the very first portion, for it contains the larger number of spermatozoa. The specimens should be kept at room temperature and examined shortly after allowing at least 20 minutes for liquefaction and activation of sperm. Examination of condom or vaginal contents following intercourse is so inaccurate as to be practically useless. Most observers feel that two specimens, obtained after at least a three day period of continence, are necessary. Except for the morphologic study of spermatozoa, semen examination is relatively simple. Haphazard evaluation, however, whether from carelessness or lack of experience, should be avoided.

The arbitrary minimal standards for semen evaluation as set by the Society for the Study of Sterility are as follows:

1. Liquefaction: within 10 to 30 minutes.
2. Volume: 2.5 to 5.0 cc.
3. Motility: 60 to 70 per cent within two hours; 25 to 40 per cent within six hours.
4. Sperm count: A minimum of 40 million per cubic centimeter, with a total of at least 125 million per ejaculate.
5. Morphology: 80 per cent normal.

Among other factors that should be considered are the pH, which should be slightly alkaline, and the number of white blood cells relative to infection. All the factors involving evaluation of the semen must be considered collectively rather than individually. For example, a low sperm concentration is compensated for by a high volume.

Treatment of Sterility in the Male

Treatment of male sterility may be simple or hopeless. Regardless of any other handicap, the husband's only requirement is an adequate number of normal spermatozoa, provided that these are properly placed for entrance into the cervix. This can be easily determined through postcoital examination of the cervical mucus, to be discussed later.

Etiologically, treatment is directed to correction of one or a combination of the following: anomalies of the genital tract, such as a deformity or hypogenitalism, infection, defective or inadequate spermatozoa, and impotence. Moderate hypospadias is not believed to be significant by most observers. Artificial cervical insemination should be

considered in the presence of complete hypospadias, an abnormally small penis, or other anomalies resulting in extravaginal ejaculation. Corrective surgery should be used only as a last resort. Infection, especially of the prostate or vesicles, may be helped by massage and antibiotic therapy. Permanent tubal obstruction can be corrected only by competent surgery, the reported rate of success being only 10 per cent.

Faulty spermatogenesis is a common and major problem. Lesser degrees of oligospermia may be helped by many measures. Dietary advice, adjunctive vitamins, and such hygienic measures as proper clothing and conditions for optimum intrascrotal temperature are indicated. Abstinence from tobacco is believed to be important by some, although there is no clear evidence that smoking is harmful. Prolonged continence from five to seven days, especially prior to coitus timed with ovulation, is believed by some to be helpful. Precoital alkaline douches may be beneficial. Following properly timed coitus, the wife should remain on her back with her thighs acutely flexed for one hour. The latter measure is suggested for anterior tilting of the pelvis to encourage optimum contact of sperm and cervical mucus. She should also remain in bed for at least four hours. If these measures fail, one may resort to artificial placement of the oligospermatic semen into the cervix, but not beyond the upper confines of the canal. Cervical cap insemination may be successful when other measures have failed.

Artificial insemination involving extramarital donors must, at the best, be reserved for wives whose fertility has been clearly adjudged and whose husbands are known to be sterile. Such a procedure is fraught with psychologic, legal, religious, and ethical difficulties. It can become an expensive and time-consuming proposition.

The value of testosterone, as well as of various forms of gonadotrophic therapy, is still conjectural, and is viewed with pessimism by most observers. While it may stimulate sex drive and even hypoandrogenism, it may also damage seminal function. A recently postulated "dormant" or delayed effect of this drug for spermatogenic deficiency warrants further study. Many feel that thyroid is the only endocrine therapy indicated in these cases. The basis of extreme degrees of oligospermia and azospermia may be discovered by testicular biopsy. If the histologic

examination shows adequate spermatogenesis, obstruction of the genital tract is likely. Only surgery can help these cases, but the chance of success is usually less than 10 per cent.

Impotence is usually related to psychogenic influences which are slowly but surely becoming appreciated. Failure of erection due solely to hormonal deficiency is rare, and overzealous androgenic therapy is therefore to be condemned. The psychosomatic approach to impotence is important and deserves attention.

Evaluation of the Female

The third group of causative factors in sterility—those of the female pelvis—will be considered on an anatomic basis. The brief discussion which follows includes many of the principles and practices advocated in the Fertility Clinic of the Free Hospital for Women (Brookline), a teaching center associated with the Harvard Medical School.

Vaginal factors

Vaginal causes of infertility are *anatomic obstruction*, *dyspareunia*, and *infection*. They prevent proper access of the semen to the cervix.

Obstruction is discovered by history and digital examination. Progressive dilation with glass vaginal forms or by plastic surgery are the usual forms of treatment. Psychogenic factors must be kept in mind.

Dyspareunia is found by careful history taking and examination. Treatment depends upon the cause—disease, trauma, or psychogenic factor—and is directed respectively towards the physical condition, coital habit, or psychologic attitude.

Vaginitis, fortunately, is rarely a cause of sterility. Diagnosis requires inspection of the vagina, and frequently a smear or culture. Bacterial and Trichomonal infections usually respond to a faithfully used acid douche and a regimen of topical medication. Fungus infections may prove to be more resistant and require office therapy. Stubborn cases may warrant examination of the husband's prostate.

Cervical factors

Cervical factors include *inflammation*, *abnormal secretion*, and *inaccessibility*.

Cervicitis and *endocervicitis* are easily diagnosed by visual examination, biopsy when indicated, and postcoital microscopic

examination of cervical mucus. The latter procedure is valuable in demonstrating the degree of insemination and preservation of spermatozoa. Coitus is advised during the estimated ovulation phase and examination performed from four to about 16 hours thereafter. Douches must not be used, and patients should be instructed to remain supine for at least two hours after coitus. Naturally, spermicidal lubricants must also be avoided.

The cervix is exposed, wiped clean, a drop of endocervical mucus removed by forceps or pipette, placed on a glass slide under a cover slip, and examined under dry high-power magnification. The presence of frank pus indicates endocervicitis and possible endometritis. A moderate number of leukocytes, not more than 20 per high-power field, may be insignificant, but suspicion points to mucus containing masses of dead spermatozoa. Proper interpretation demands previous examination of the semen, and the postcoital examination must have been conducted at or near ovulation time. At other times cervical mucus may physiologically contain many leukocytes, and the secretions be below the optimum level for sperm reception (*vide infra*). Superficial cervicitis may be treated by cauterization, local medication, or both. If marked, careful conization of the cervix, with supplementary antibiotics and douches, may be necessary. Conization must be guarded to prevent excessive destruction of the cervical glands. The same is true in treating endocervicitis. Overzealous cauterization may result in a dry, poorly functioning cervix, if not in stenosis.

Abnormal secretion may be either insufficient or excessive. The biophysiologic properties and interpretation still leave much room for further study. Postcoital examination of cervical mucus, if made at actual time of ovulation as previously discussed, may be of great diagnostic value. At other times, normal endocervical mucus is viscous, scanty, and contains considerable cellular debris and leukocytes. During the ovulation phase, it is more plentiful, less viscous, clear, and contains few, if any, cellular elements. Assuming healthy semen, normal mucus should contain at least 10 motile sperms per high-power field. If the count is less than 10, or if with even larger numbers present, more than a third are of altered morphology, the test (possibly more accurately timed) must

be repeated. Persistence of the aforementioned findings is highly suggestive of altered cervical secretions, causing repulsion or destruction of normal sperms, abnormal sperms, or inaccessibility of the cervix for sperm reception. If repeated negative tests have not been preceded by examination of the semen, the latter should be insisted upon. Fortunately, insufficient mucus at ovulation time is uncommon, for it is difficult to correct. Estrogens may be helpful, but must be given in small doses to avoid suppression of ovulation. Dilation of the external os or posterior discission may be helpful.

Inaccessibility of the cervix to spermatozoa is usually due to a retroverted fundus, which displaces the cervix anteriorly and places it less than 3 cm. from the inferior border of the symphysis. It is diagnosed by digital and visual examination, thence confirmed by postcoital test. Treatment consists of manual replacement of the displaced uterus, pessary, and corrective coital technique, with intracervical intromission. If, on the other hand, the cervix is too deeply placed in the vagina, delayed withdrawal and postcoital anterior tilting of the female pelvis may be helpful. Surgery is reluctantly employed only as a last resort.

Uterine factors

Infertility factors of the uterine fundus are *endometrial dysfunction, inflammation, and congenital or developmental abnormalities*.

Endometrial dysfunction depends, in the main, upon anovulation and improper estrogen-progesterone action. This factor may be ascertained through menstrual history, basal temperature charts, and endometrial biopsy or curettage. Regular catamenia with normal and similar flow assumes progestational effect. Daily awakening temperature charts may also be used as supplementary evidence, but are of value only after several monthly patterns have been obtained. While rectal temperatures are more desirable, oral recordings are acceptable. Comparatively low pre-ovulatory and higher postovulatory levels (the so-called "biphasic" pattern) indicate the proliferative and secretory phase respectively of each cycle. The point at which the temperature begins to rise indicates proximate ovulation, and indicates the proper time for intercourse. This rise also aids the physician in planning certain studies in

which knowledge of ovulation time is advantageous.

The test for endometrial dysfunction is biopsy or curettage. Curettage is reserved for selected cases, since office biopsies are easier, more expedient, and less inconvenient and expensive for the patient. A small, special type of curette is becoming increasingly popular over the older suction method. Tissue must be obtained either as soon after estimated ovulation as possible or on the first day of menstruation, for between these times the potential danger of traumatic abortion must be considered. Interpretation of biopsy tissue is too technical for this presentation. Suffice it to say that the basic issue is function or failure of the corpus luteum. With failure, study of temperature charts and repeated biopsies at later intervals are usually indicated before sound conclusions and competent therapy can be formulated. Treatment, at best, is only hopeful of producing ovulation. Most observers feel that cyclical progesterone therapy is promising. Other aspects of treatment will be discussed later in conjunction with ovarian dysfunction.

Inflammation is usually diagnosed by examination of endometrial tissue or postcoital cervical mucus. With the latter, however, endocervicitis is the usual offender. Non-specific types of infection may be eliminated by antibiotics. While hysterectomy was formerly indicated for tuberculous endometritis, streptomycin has given such encouraging results that some new antibiotic may later preclude such radical treatment.

Abnormalities of the fundus are diagnosed by manual examination, transcervical probing of the endometrial cavity, and hystero-graphy. Hypoplasia uteri, or infantile uterus, is fairly common, constitutes a sterility potential, and is difficult to treat. Thyroid, estrogens, and other hormones may be tried, but the required doses usually affect ovulation, and menstrual disorders may result. Anatomic deformities—notably duplicated uteri, malposition, and fibroids—should not be overestimated as causes of sterility. Surgery should be resorted to only after other factors have been eliminated.

Tubal factors

Tubal functions of infertility are *adhesions* with or without inflammation, *fimbrial incompetence*, *obstruction*, and *dysfunction*.

These factors will be considered collectively, since their diagnosis and treatment are closely related. The following diagnostic procedures apply to them all: bimanual palpation, tubal insufflation, salpingography, and culdoscopy. Tubal functions such as proper secretion, acceptance and conveyance of the sperm, and transport of the fertilized ovum to the uterus are assumed. Many aspects of tubal function are beyond our present knowledge. We do know that patency of the tube is mandatory. Unfortunately, its absence is a common cause of sterility. However, its presence can usually be ascertained by insufflation or salpingographic studies. The former is preferred for many reasons, but when doubtful must give way to salpingography. Both procedures require specific equipment and gentle, dexterous technique. Contraindications include menstruation, active pelvic infection, and any likelihood of conception. The latter consideration requires that the procedure be performed sometime between the cessation of menstruation and before ovulation. Carbon dioxide is much preferred over air for insufflation. Pressure should be applied slowly to reach a maximum of 200 mm. of mercury. Subsequent shoulder pain, while confirmatory, is not essential proof of tubal patency with passage of gas. A positive result indicates only patency, not normal function. Repeated negative insufflations strongly suggest tubal obstruction, but doubtful results should be settled by salpingography. The latter procedure may also be helpful in hystero-graphy to diagnose such conditions as neoplasms, hypoplasia, and malposition.

Culdoscopy (telescopic visualization of the pelvis through the cul-de-sac) may decide whether laparotomy is indicated. The details of this procedure, as originated by Decker, are omitted, for it can be performed only by specially trained persons. It should be considered whenever tubal or ovarian lesions and deformities are suspected.

Treatment of tubal disorders is restricted by inaccessibility, limited knowledge of tubal functions, and the pessimistic outlook for corrective surgery. Such common offenders as permanent tubal closure, fimbrial incompetence, tubal adhesions, and congenital abnormalities will respond only to surgery. The operative procedures must be well chosen and preceded by evaluation of all other factors. Any form of tuboplasty is a delicate procedure which, at best, can offer only a

20 per cent chance of success. Patients must not be misled as to the possible results. Some observers think that insufflations may correct tubal occlusions of a mild degree. Repeated insufflations, however, may incur such dangers as infection, endometriosis, ectopic pregnancy, and traumatic abortion. Acute infections of the fallopian tubes are usually best treated by antibiotics.

Ovular factors

Anovulation, luteal inadequacy, and defective ova are accepted ovarian factors in infertility although often difficult or sometimes impossible to identify. These factors will be discussed collectively, because of their close relationship and mutual diagnostic and therapeutic principles.

Diagnosis should include a careful history—especially of the incidence and quality of menstruation—temperature charts, and endometrial biopsy, as previously discussed in the diagnosis of endometrial dysfunction. The close relation between endometrial and ovarian function—notably corpus luteal activity—demands this mutual consideration.

Treatment of the aforementioned disorders embrace a common pattern. A strict regimen to improve the general health and hygiene may be helpful. Many observers advocate the use of thyroid in doses regulated to tolerance. Any appreciable anemia should be corrected. The greatest problem is generally that of producing ovulation with proper luteal activity in refractory ovaries. This major hurdle still baffles the therapist. The usual resort is cyclic menstrual regulation with estrogen and progesterone therapy. The various methods employed by different clinicians are beyond the scope of this presentation. Chorionic and pituitary preparations are still viewed with pessimism. X-ray therapy for ovarian stimulation may do more harm than good.

Gross disease or anomaly of the ovaries—notably neoplasms, adhesions, endometriosis, and malposition—constitute another group of ovarian factors in infertility. In contrast to those factors previously discussed, these abnormalities may be amenable to surgery. In addition to the other ovarian diagnostic procedures, culdoscopy or pelvic laparotomy may be in order. One should not become too enthusiastic about corrective surgery, however.

Conclusions

The progressive number of marriages with an approximate 10 per cent incidence of marital sterility presents a growing problem to the medical profession. Simple reassurance and indoctrination by the physician will "cure" many young and commonly ignorant married couples of their "sterility." Neither the diagnosis of sterility nor the extensive investigation it demands are justified until at least one year of intelligent marital endeavor has been futile. Since sterility is generally due to more than one factor, investigation must be thorough and complete, and must precede any therapy of an appreciable degree.

Thorough investigation of the husband cannot be overemphasized. While absolute factors in male sterility may not be detected, many contributing or relative factors may be present.

Properly treated patients have an approximate 30 per cent chance for pregnancy. Many contributing factors—such as errors in insemination, spermatogenic and ovarian deficiencies of a mild nature, hypothyroidism, and certain infections in both male and female—are correctable. On the other hand, certain absolute factors carry a poor prognosis—azospermia, complete obstruction of the oviducts or spermatogenic system, absolute ovarian failure, and certain malformations. With the latter factors, the physician must be frank and appropriately pessimistic, though he must never tell any woman with a uterus, an ovary, and a husband that pregnancy is impossible. Adoption should be sympathetically and tactfully discussed. Artificial insemination is another recourse, but only in carefully selected cases.

Endocrine therapy in general—notably by estrogens, progesterone, androgens, and gonadotropes—is overrated and leaves much to be desired. The same is true of vitamin therapy. Thyroid may enhance ovarian or seminal function, but can certainly be harmful if given injudiciously. Surgical treatment has been overdone. There has been an estimated occurrence of only 3 per cent full term pregnancies from all pelvic plastic procedures for sterility.

The childless couple is hindered nowadays more by misinformation than by any other

factor. This fact should challenge the medical profession. While much remains to be accomplished, progress in the treatment of sterility has been great, especially during the past decade.

MEDICOLEGAL PITFALLS

E. C. FISHER

RICHMOND, VIRGINIA

Fifty or sixty years ago, the average patient would have as soon thought of suing his minister as his family physician. The family doctor was an esteemed friend. With the passing of time, however, and the trend towards specialization, this intimate relationship between doctor and patient has not been maintained. Because of the lack of an intimate relationship between patients and physicians, many people look upon their doctors as they do their grocerymen or garage mechanics, except that they can tolerate excuses and mistakes from a layman while expecting their doctors to be superhuman beings who can never make an error.

It has always been the policy of our company to attempt to avoid claims, as well as to protect and defend the members of the profession against whom claims and suits have been brought. I will try to outline some of the things we believe will tend to minimize the ever increasing number of unfounded claims against physicians and dentists.

During the last few years, the majority of doctors, along with the general public, have enjoyed large incomes. Group hospitalization insurance has sent to doctors and hospitals people who in the past would not have sought medical care. Even those who do not have such insurance have been better off financially in the last few years. This situation has put an added strain on the hospital facilities, and individual physicians have had less time to give to their patients. The average patient does not relish being brushed off and treated impersonally. He feels that his is the most important case of the doctor's day, and that his long tale of woe should be listened to sympathetically. If an immediate cure is not effected, he is likely to blame it on the doctor's hurry and impatience. Some ignor-

ant and uneducated people feel that the doctor, being well fixed financially, is a perfect target for a claim or law suit, and, whether they have a real or an imagined grievance, are prone to run immediately to the nearest attorney.

While some proponents of socialized medicine harp upon these matters in an effort to carry their point, all who realize the utter absurdity of socialized medicine must band together to defeat it. We must not, through any act of omission or commission, give these people ammunition for their warfare. A little sympathetic listening and applied psychology will do more for some patients, as you well know, than any drug in the pharmacopoeia, and may help to prevent these claims.

Treat Every Patient as a Possible Claimant

It is a sad commentary on the present state of world affairs that so many people are looking for something for nothing and that doctors have to be somewhat skeptical about a large number of their patients. One good rule to follow is to treat every patient, especially a new one, as a potential claimant. It often happens that the patient over whom you have worked the hardest and with whom you secured the best results will have the least appreciation. Frequently this attitude is caused by ignorance, but more often by avariciousness.

In Richmond a few years ago a young man who had been shot in his right leg was carried to a hospital, and a prominent surgeon left his bed at 2 a.m. to operate. The leg could not be saved and, as the patient was in severe shock, a hasty amputation was done. Through faithful medical and nursing care, he recovered. He was placed, at no cost to himself, in a rehabilitation clinic where a re-amputation was done in order to provide a suitable flap, an artificial leg was fitted, and rehabilitation was effected. In his ignorance, the patient thought that, because re-amputation to provide the flap was necessary, the surgeon who originally amputated his leg had done it improperly, and he promptly brought suit against the surgeon. This may seem to be an exaggerated case, but our files are full of other suits with as little merit. The charity patient is just as prone to bring suit and has just as strong a chance of making a recovery in dollars and cents as the patient who is able and willing to pay his bill.

From the AETNA Casualty and Surety Company, Hartford, Connecticut.

Keep Adequate Records

A factor which frequently handicaps us in the proper investigation of claims against professional men is the failure to keep adequate records. Frequently one of our adjusters calls on a doctor to investigate a claim against him, asks the privilege of looking over the office records, and finds how absolutely inadequate they are. We recently had a case of a dentist who had simply recorded on his office card that he had extracted a tooth, neglecting to say which tooth, and the patient was then claiming that the wrong tooth had been extracted.

Detailed histories are important, as they often throw light on the patient's background and enable us to acquire information that may well defeat the suit at hand. Medical records are just as important from the standpoint of the doctor's own protection as they are for the patient's welfare. Not only should such records be kept but they should be preserved for a reasonable period of time, since several years may elapse before a suit or claim is brought. Of course, in the case of a minor, the statute of limitations does not begin to run until the child has reached his majority, and in North Carolina the statute of limitations is three years after the time that the patient has become 21 years of age.

Avoid Misleading Remarks

Many claims of malpractice have been precipitated by a perfectly innocent remark made by some doctor or nurse. The average layman does not understand medical terms and may be prone to twist and distort the meaning that the doctor had in mind. We recently had a case of a typical anesthetic death. The patient was on the table for a simple dilation and curettage when suddenly her blood pressure dropped, and she died, through no one's fault. A few days later the patient's husband called on the surgeon and inquired as to the cause of death. The surgeon replied: "It was one of those medical accidents which occur." Although his meaning is perfectly clear to you and me, the word "accident" to the layman implied that something had happened as the result of somebody's negligence, and he promptly brought suit against the surgeon. Had the doctor taken a little time to explain to the bereaved husband that such deaths sometimes occur during the administration of anesthesia, that they are unpredictable and unpreventable, and that they constitute one of the risks of

the operating room over which no one has any control, he might have saved himself an embarrassing law suit.

Furthermore, the average patient does not understand any explanation given in highly technical terms. Were a patient told that he had a severe ecchymosis, he would immediately think of some dread disease, whereas if it were explained that he had a bruise on his leg which would be all right in a couple of days, he would go on his way rejoicing. It has been our experience that many a claim has been precipitated by too detailed a discussion of symptoms and findings in complicated language. We have found that the best practice is to reassure the patient in as simple terms as possible, not going into great detail unless pressed.

Frequently doctors are misquoted, and Mrs. Jones goes home and tells Mrs. Smith that the doctor said that she had the worst case of phlebitis that he had ever seen, when in all probability he told the woman that she had neuritis. Many claims arise over back fences while patients are discussing their ailments with their next door neighbors.

Another mistake that physicians frequently make, in their effort to encourage and reassure the patient, is to lead him to expect a perfect result. The practicing physician should be constantly on guard against saying anything that can be construed as a guarantee. In all fields of medical practice, untoward results will occur at times.

Don't Criticize Other Physicians

Another cause of many unfounded claims of malpractice is the careless criticism of fellow practitioners. Extreme care must always be exercised in this regard. It has been said that the raising of an eyebrow or the inflection of a voice has planted the seed of discontent in a patient's mind, even though no malice or criticism was intended. You may honestly disagree with another doctor's handling of a case before it comes to you. It may also be that you are right and the other doctor in error, but remember always that, though he may have made a mistake, in 99 per cent of the cases he did what he honestly thought was right, and the mere fact that you let the patient know that you disagree with the treatment given or the opinion expressed by the other physician may well precipitate a claim.

We are most fortunate in having the cooperation of the profession as a whole in the

defense of these claims. In Virginia and the Carolinas doctors are ready and willing at all times to help defend an unfounded suit against another member of the profession. When any doctor starts furthering his own ends by criticizing other members of his profession or by testifying, for a fee, to something that may not be altogether true, the profession is headed for disaster.

On Occasion Delay Pressing Bill

Another precipitating factor in many claims against doctors is the effort on the part of the patient to evade paying his bill. If and when at any time a patient appears dissatisfied or appears as a potential malpractice claimant, delay in pressing the bill until the statute of limitations for the damage suit has run out might be recommended. We do not advocate and never will advocate that a physician let himself be frightened by a potential claim by a patient who is simply trying to avoid paying the bill, but the cases to which I have reference are those in which some trivial thing has gone wrong which the patient may magnify and use as an excuse or the foundation for a law suit.

Avoid Damaging Admissions and Commitments

If a patient comes back to complain about something you have done, never make any admission or commitments even if his complaint is, in your opinion, somewhat justified. You have no desire to withhold from the patient any information to which he is entitled, nor to see that he does not get everything due him, but frequently innocent commitments and admissions, made in an effort to placate a dissatisfied patient, will be used later as an admission of liability on your part.

It often happens that a doctor receives a message from some attorney stating that he represents a certain patient and is investigating to see if the patient has a proper claim against the doctor. Sometimes the doctor will sit down and discuss the matter with the attorney or write a letter that could be very damaging, since, in most cases, the lawyer is simply trying to obtain all the damaging evidence that he can. Should you receive such a letter, turn it immediately over to your insurance carrier; or, should the attorney call in person, refuse to discuss the matter with him, stating firmly but politely that he is engaged in the practice of one profes-

sion and you in another, and that you would rather have your representative discuss the matter than do it yourself.

Promptly Notify your Insurance Carrier

I would like to stress that when the first inkling of a possible claim for malpractice against you arises, promptly report it to your insurance carrier. There are several reasons for this, one being that in the event of a report your representative will have a chance to decide whether or not an extensive investigation is indicated at that time, or whether or not the matter should be left alone to await developments. By so doing, moreover, you obviate any chance of jeopardizing your insurance coverage by delayed notice. Your carrier is aware of the matter from the beginning, and is in a much better position to protect your interests and those of the company. In many instances, he will be able to secure enough information to discourage the actual filing of a suit. Law suits are expensive and time-consuming, and I would hazard the guess that at least 80 to 85 per cent of the claims and suits that are brought against doctors are absolutely without just grounds. There are a few cases, however, in which the patient may be due some settlement. In this small percentage of cases, your insurance carrier will never attempt to settle the case without your written consent. This is the only type of insurance contract which contains such a provision that I know.

Refer Doubtful Cases

For those of you who are practicing in rural areas where x-ray and laboratory facilities are not available, the problem is more difficult. I say to you, however, that in unusual or doubtful cases, make assurance doubly sure by referring the patient to the nearest location where such facilities are available. We have lost several cases in rural areas where the physician relied entirely upon his own observations without the aid of x-ray films, blood counts, blood chemistry studies, and so forth. Again, these procedures should be taken as much for the doctor's protection as for the health of the patient.

Identify the Patient

It seems almost unnecessary to warn a surgeon to be sure that he is operating on the right patient. Not long ago, however, a doctor came into the hospital one morning to perform a tonsillectomy on a patient who had been posted. He went to the operating

room, scrubbed, and the orderly rolled in a patient. The doctor proceeded to remove the child's tonsils and adenoids, and the patient was returned to his room in good shape. Suddenly, to the consternation of everyone concerned, it was discovered that the orderly had brought the wrong patient to the operating room. The child on whom the surgeon had operated was in the hospital for an entirely different complaint, and the patient who was posted for the tonsillectomy was still the proud possessor of his tonsils and adenoids. Of course, the patient who had lost his tonsils and adenoids had not been harmed in any way, but the parents claimed that he did not need the operation and had been subjected unnecessarily to anesthesia and other surgical hazards, and were demanding large sums of money.

Another example of mistaken identity was brought to our attention recently when a policyholder posted a patient for an appendectomy. He was to perform a vas ligation on another patient on the same day and confused the two cases in his own mind. The patient who was supposed to have his appendix removed was brought to the operating room, the surgeon promptly performed the vas ligation, and it was not until the operation was completed and the patient was back in his room that the mistake was discovered. Needless to say, the patient, a 33 year old man, was irate, and a law suit resulted.

Serving the Medical Profession

We do not handle claims against professional men as we do automobile claims. It is all well and good for us to decide that it would be cheaper to settle for Bob Brown's automobile accident than to defend a law suit. Since anyone who drives an automobile can be involved in an accident, the claim can be settled without reflecting upon Mr. Brown's driving ability, his professional skill, his mentality, or his character. When we settle a claim against a doctor or professional man, however, we have to admit that he has been negligent in some way or we would not be settling the claim. That is one of the reasons that the provisions referred to previously are written into your policy, and that these cases are so carefully investigated and prepared.

Our representatives do not like to take up a doctor's time unnecessarily, but we feel

that in making detailed and careful preparations for the defense of these cases, 'we are not only serving the individual doctor involved but the medical profession as a whole. I am sure that most physicians realize this fact, because you cooperate with us so splendidly in the investigation of these cases.

EARLY NORTH CAROLINA MEDICINE

*North Carolina Medical Society
Meeting, 1801*

DOROTHY LONG*

LEXINGTON, KENTUCKY

A little more than one hundred fifty years ago, in December, 1801, the Medical Society of North Carolina met in Raleigh, and its annual meeting is described in some detail in the *American Review and Literary Journal*⁽¹⁾. The report of the meeting, dated December 8, says that the society met "on Tuesday last, and adjourned on Thursday," and that "a considerable number of respectable Physicians from various parts of the State were present." The address by the president of the society was described as "a cursory narrative of the progress of the Science of Medicine from the earliest ages . . . and of the most eligible means of promoting its utility." Among the other speeches was one by Dr. Starling Wheaton, who was later elected recording secretary for the following year. His paper was "an ingenious practical Treatise on general Dropsy . . . in which a successful method of treating that formidable disease was illustrated by relation of particular cases," to quote again the report of the meeting, which may well have been prepared by Dr. Wheaton himself.

Among other items of business discussed at this 1801 meeting was a plan to collect "such indigenous productions of the United States as may be found to have medical properties" and to preserve them in a botanic garden which the society hoped to establish at the place of its annual meeting. At an earlier date the medical society had tried to encourage the cultivation of medicinal plants by offering prizes to those who successfully produced opium, rhubarb, and castor oil⁽²⁾. According to the report in the

*Assistant Reference Librarian, University of Kentucky, Lexington, Kentucky.

American Review, some of these substances had been produced, but not in sufficient quantities to entitle anyone to the prize, so that the society decided to continue its offer for another year. Apparently it also awarded a prize for a scientific paper, since the report states that "The best mode of preventing and curing infantile diseases is given as a prize subject for the ensuing year." In addition, four members, whose names are not given, were chosen to present dissertations at the next annual meeting. A committee was also appointed to plan for the establishment of a library and "the collection of a Museum of Anatomical Preparations, and such other Curiosities of Nature and Art as may be deemed worthy of preservation by the Physician or Naturalist."

Officers elected for the year 1802 were Drs. John C. Osborn, president; Thomas Mitchell and Richard Fenner, vice presidents; James Webb and John Claiborn, censors; Calvin Jones, corresponding secretary; Starling Wheaton, recording secretary; and Cargill Massenburg, treasurer. The duty of the censors, apparently, was to examine candidates for entrance into the society, as the Transactions of the North Carolina Medical Society for the year 1889 contains the statement, "One old record says 'Mr. Charles Smith presented himself for membership, and having been examined by the censors in the presence of the Society, was admitted to membership.' (This was in 1798 or 1799)."(2)

Some of the officers elected for the year 1802 were doctors about whose careers little has been written, but information is available concerning others. One interesting item, evidently describing one of the vice presidents, is derived from the Thomas Henderson Letter Book, 1810-11, a bound volume of manuscript accounts of several counties, written for the Raleigh *Star* by residents of the various counties, and later reproduced in the *North Carolina Historical Review* by A. R. Newsome. The description of Franklin County⁽³⁾, dated June, 1810, says that Dr. Thomas Mitchell came to America in 1789 or 1790, from Aberdeen, Scotland, where "he practiced Physic for some time with success," and that he was "not only a Gentleman of great skill in his profession, but of science and general knowledge—there were few subjects on which the Doctor could not

communicate information and he delighted in the communication—in the course of his practice he performed some wonderful cures of which there are living witnesses, and it is believed that he was the first in this part of the Country who in any great degree introduced Electricity into the practice of Physic—we know he introduced it with success—when residing in Scotland he wrote some articles for the Second Edition of the Encyclopedia Britannica (This edition was published in the years 1777 to 1784.), for which he received the thanks of the compilers, and we have reason to believe that had he lived he would on the subject of Medicine have added to our stock of knowledge."

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Children Safe With New Armour Aspirin

A "child-proof" form of aspirin was announced recently by The Armour Laboratories of Chicago.

The new form of the common drug, under the Armour trade name of Crystar, eliminates the major objections which make it difficult for mothers to give to children when the family physician prescribes it.

The secret of the new product is simple: It is tasteless. Crystar is not bitter like common aspirin and consequently can be added to any familiar liquid like milk or orange juice without objection. Ordinary aspirin is often rejected by children because of the impossibility of disguising its bitterness.

At the same time, since Crystar is tasteless rather than flavored, as is some "pediatric aspirin," children are not tempted to hunt it out in the medicine chest without their mother's knowledge and eat enough of it to poison themselves, in the belief that it is candy.

Crystar is a powder which is freely soluble in liquids ordinarily given to children. It does not change their taste. It is supplied in packets which contain exactly one grain, 24 packets to a box. One packet, or one grain, will dissolve readily in as little as two teaspoonsfuls of water, juice or milk.

Combined Milibis-Aralen Tablet Highly Effective Against Amebiasis and Malaria

A new drug preparation combining the compounds Milibis and Aralen in a single tablet has been used with notable success in the treatment and prevention of both amebiasis and malaria, recent medical studies reveal.

Based on extensive clinical tests, one report concludes that Milibis-Aralen "will prove to be a valuable compound in areas where both diseases are endemic."

The combined Milibis-Aralen tablet is now available to the medical profession, it was announced recently by Dr. Theodore G. Klumpp, president of Winthrop-Stearns, Inc. Each tablet contains 250 mg. Milibis and 75 mg. Aralen diphosphate.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

JUNE, 1952

THE NINETY-EIGHTH ANNUAL SESSION

The ninety-eighth annual session of the State Medical Society was noteworthy for a number of reasons. Perhaps the most remarkable was the fact that the meeting of the House of Delegates was adjourned—with all business dispatched—before 10 o'clock Monday night. So far as could be learned, this was the first time that this has happened in the memory of any living member. The achievement was made possible largely by the fact that all official reports had been submitted previously, and examined with care by the Executive Council the day before. Every delegate had been provided with copies of these reports, and was given opportunity to discuss any one or all of them, so that there was no "railroading" at the expense of fair play.

Another noteworthy event was the adoption of the Prepaid Medical Service Insurance Plan, which has been a subject of debate for the past four years. Dr. V. K. Hart and his committee deserve great praise for the tremendous amount of work they have done and the perseverance they have shown in developing a plan satisfactory enough to be accepted by the Society. Almost enough signatures have been secured from members to make it almost certain of a trial. One member of the Society was heard to tell Dr. Hart that Job had nothing on him when it came to patience, and the other members of his committee also deserve commendation for their loyal support.

Both Dr. Hubbard's addresses—his report to the House of Delegates and his presidential address at the Annual Dinner—were excellent, as may be seen by reading them in this journal. It was gratifying to hear him say that our Society last year reached its highest membership—2,519 of the 2,775 physicians listed in the A.M.A. Directory.

One of the first actions taken by the House was the election of the North Carolina General Practitioner of the Year, to be presented to the A.M.A. at its interim meeting in 1953. Dr. E. B. Lattimore of Shelby, who was last year's choice and who came very near being selected by the A.M.A. as the national representative, was again chosen by a good majority.

Dr. Wiley D. Forbus, chairman of the Committee on the Coroner System, reported to the House that the committee proposed to have introduced early in the 1953 legislature a bill to establish a state medical examiner system instead of the antiquated coroner system now in use. He asked for the support of all our membership in urging their legislators to vote for such a bill.

Many other important matters were dealt with in the first meeting of the House of Delegates—but they will be reported in the Transactions Issue of this journal, and need not be detailed here.

The Officers' Breakfast Tuesday morning was marked by two excellent addresses: one by Mr. Leo Brown of the A.M.A. Department of Public Relations, and the other by Dr. Elden C. Baumgarten of Detroit. It is hoped that both these will soon be published in the NORTH CAROLINA MEDICAL JOURNAL.

The opening General Session on Tuesday morning featured many visiting celebrities,

including Dr. John W. Cline, the president of the A.M.A., Mr. Mac Cahal, secretary of the American Academy of General Practice, and three new members of the University of North Carolina Medical School faculty. The headline address was, of course, Dr. Cline's "Problems Confronting Medicine in the Immediate Future." This is scheduled for publication in an early issue of the NORTH CAROLINA MEDICAL JOURNAL. Mac Cahal's address, "Caution—Curves Ahead," was also interesting and timely.

At the President's Dinner on Tuesday night, Dr. Reece Berryhill was toastmaster. President Fred Hubbard summarized the achievements of medicine in North Carolina during recent years, and stressed the importance of the doctor's duties as a citizen. Dr. Cline outlined the principal medical advances made in the first half of this century.

Following the President's Dinner, a floor show in the ball room preceded the President's Ball.

Perhaps the chief feature of the Second General Session on Wednesday was the address by Mrs. Haven Smith of Nebraska, "The Relations of Doctors and the Farm Group." Another feminine contribution which was well received was the prize winning essay of Miss Maude Bess Pow of Cramerton. At the Conjoint Session with the State Board of Health, Dr. Roy Norton gave a good account of his stewardship as our State Health Officer during the past year.

The Nominating Committee—which had been selected a year ago—brought in their report, which was unanimously adopted and seemed to meet with general approval. The officers nominated were as follows: Dr. Joseph A. Elliott of Charlotte, president-elect; Dr. George Paschal of Raleigh, first vice president; Dr. Forest Houser of Cherryville, second vice president. Dr. Millard D. Hill of Raleigh was unanimously re-elected secretary-treasurer, and district councilors were elected as follows: First, Dr. Zack Owens, Elizabeth City; Second, Dr. James S. Rhodes, Williamston; Third, Dr. Donald Koonce, Wilmington; Fourth, Dr. J. G. Raby, Tarboro; Fifth, Dr. Joe Hiatt, McCain; Sixth, Dr. Arthur London, Durham; Seventh, Dr. John Ormand, Monroe; Eighth, Dr. Norris Smith, Greensboro; Ninth, Dr. John Reece, Morganton; Tenth, Dr. W. A. Sams, Marshall.

Delegates to the American Medical Association for three year terms, beginning

January, 1952, were elected as follows: Dr. Charles F. Strosnider, Goldsboro; Dr. B. O. Edwards, Asheville. Dr. Millard D. Hill, secretary-treasurer of the Society is automatically a delegate by virtue of his office.

At the final General Session on Wednesday afternoon Dr. Street Brewer was installed as president. It is only necessary to repeat what was said in the report of last year's meeting: "Dr. Street Brewer can be expected to maintain the high standards of his predecessors." And the same can be said of President-Elect Joe Elliott.

* * *

The innovation of having a Speaker of the House apparently met with general approval. It is hard to think of a more fortunate choice for this important job than Roscoe McMillan. His knowledge of parliamentary law, his unfailing good humor, his sense of fair play, his poise, and his personality all combine to fit him for the place.

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At the President's Dinner Reece Berryhill established two records as toastmaster: he did not tell a single story, and he adjourned the dinner session only two minutes behind the time set.

* * *

AN APOLOGY IS DUE OUR SPEAKERS

The North Carolina Medical Society is a large and vigorous body. As a smoothly-running organization, however, it leaves something to be desired. This was demonstrated clearly by the debacle in the First General Session at Pinehurst this year. The events of the morning are somewhat difficult to reconstruct because of the writer's absence early in the proceedings. As well as he can ascertain, the meeting began late because of an excessively prolonged Officers' Breakfast. Then, two guest speakers, first speakers of the morning, talked for approximately twice their allotted time. As a result, the population of the session decreased progressively with time until, by deponent's count, 25 persons were present for the next-to-last and 15 for the last paper.

This occurrence was an inexcusable affront to our other speakers, men who had expended much time and effort preparing for our meeting. As an organization, we should tender them our humblest apologies, because all of us are guilty. Our leadership

is guilty of having failed to foresee the problem and having failed to act forcefully when it arose. All of us are guilty of contributory negligence in not having taken preventive action long ago.

This deplorable situation is not new. It has existed, in all likelihood, since the first orator thrilled to his own voice, and the first moderator lacked the moral courage to silence him. The situation is not new in our Society, as year by year the General Sessions have tended to become longer. We should delude ourselves no longer. A General Session lasting more than two hours is tiring and, towards the end, becomes a boring experience. Remedial action should aim at *limiting* the total length of the individual sessions. Now is the time for action, and several rather obvious solutions might be considered:

1. The annual meeting might be prolonged another day and an extra General Session added.

2. The specialty sections might be paired off so that only in alternate years would each section be permitted a General Session speaker.

3. A system of clocks, buzzers, red lights, etc., could be purchased and used to bolster the moderator's moral position.

4. The speakers might be informed that the chairman intends to hew to the line of the time allotted, and that "Southern hospitality" is not a license for long-winded peroration.

No one of these alternatives is a panacea for all the problems of medical meetings, but any one of them (or a combination) would prevent a recurrence of the disgraceful episode of our recent meeting. The problem is squarely in the laps of the incoming president and the Executive Committee. It is to be hoped that they will act.

JOHN BORDEN GRAHAM

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DR. LESTER A. CROWELL, SR.

North Carolina medicine lost one of its shining lights when Dr. Lester A. Crowell, Sr., passed away on May 29. Had he lived until October 17 he would have been 85 years old. Dr. Crowell came from a medical family. His father was a doctor, and two of his sons have followed the family tradition,

while a third is the business manager of the Gordon Crowell Memorial Hospital.

Dr. Crowell was graduated from the Baltimore Medical College in April, 1892, and had been in practice for 60 years. In 1907 he opened his own hospital, which was incorporated in 1936 as the Gordon Crowell Memorial Hospital, named in honor of his son who died in 1926 after practicing with his father for four years. Another son, Lester, Jr., was graduated in medicine in 1930, and has been on the staff of the hospital as an internist. Another son, Frank, has been business manager of the hospital.

Dr. Crowell was one of North Carolina's pioneer surgeons. He organized and was the first president of the Catawba Valley Medical Society. He was a member of the State Board of Medical Examiners from 1920 to 1926. In 1929-1930 he was president of the Medical Society of the State of North Carolina. He was a member of the Southeastern Surgical Congress, the Tri-State Medical Society, the American Medical Association, and was a fellow of the American College of Surgeons.

Dr. Crowell's genial nature, professional ability, and native endowment made him a born leader in his profession. He will be missed for many years to come; but his memory will be kept green through his sons and the hospital, which is now more than ever the Crowell Memorial Hospital.

* * *

DR. PAUL H. RINGER

On page 308 of the Bulletin Board an account of the recent death of Dr. Paul H. Ringer lists many of Dr. Ringer's achievements. There were, however, at least two important omissions. In 1940-41 he was president of the Southern Medical Association. From the beginning he was a member of the Editorial Board of the NORTH CAROLINA MEDICAL JOURNAL, and was its chairman from May, 1944, until he moved to New York in September, 1950. Dr. Ringer was truly a gentleman and a scholar, and for years to come his impress will be felt on the medical profession of his adopted state of North Carolina.

BULLETIN BOARD

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Dr. C. Sidney Burwell, research professor of medicine and former dean of Harvard University School of Medicine, conducted the clinicopathologic conference and a series of cardiovascular disease clinics for both undergraduate and graduate students at the Bowman Gray School of Medicine of Wake Forest College during the week of May 19. He delivered the Alpha Omega Alpha address on May 21, when 10 students were initiated into the national honorary medical society.

* * *

At the recent meeting of the Board of Trustees of Wake Forest College, several new faculty appointments were approved. Dr. J. J. Bronfenbrenner, who will join the faculty in July as research professor of microbiology, was among those elected. He will retire from his position as professor of bacteriology and immunology at Washington University School of Medicine in Saint Louis, at the end of the current school year, having served in that capacity for 24 years. During his teaching career he has attained distinction in research, having had published many articles of scientific value in leading journals. He received his early education in Russia, and was awarded the Ph.D. degree by Columbia University in 1912 and the Dr. P.H. by Harvard in 1919. He has served as assistant in the Pasteur Institute in Paris; has directed research and diagnostic laboratories at Western Pennsylvania Hospital, Pittsburgh; and was later assistant professor of preventive medicine and hygiene at Harvard, before assuming the directorship of the Department of Bacteriology and Immunology at Washington University.

Other new appointments include Dr. John R. Ausband, instructor in otolaryngology; John N. Bennett, assistant in clinical radiology; William H. Boyce, instructor in urology; Courtland H. Davis, instructor in neurosurgery; Ralph W. Deaton, associate in clinical surgery; J. G. Klemm Harvey, assistant in pathology; Alanson Hinman, instructor in pediatrics and associate in psychiatry and neurology; John W. Hooker, associate in pathology; Elmer E. Pautler, instructor in pathology; Cabell Young, instructor in orthopedics; Norman M. Sulkin, associate professor of anatomy; and Fred C. Collier, instructor in pathology.

* * *

Dr. George T. Harrell, Jr., professor of internal medicine, during the week of May 11-17 served as professor of medicine pro-tem at Georgetown University School of Medicine. The pro-tempore professorship is arranged primarily for the resident physicians of the institution.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Two Duke University physicians have just been elected to the highest offices of two national medical societies.

Dr. Eugene A. Stead, chairman of the Department of Medicine at Duke Medical School, was elected president of the American Society for Clinical Investigation for 1952-1953.

Dr. James V. Warren, professor of medicine at Duke in July, was elected president of the American Federation for Clinical Research at a joint meeting of the Society and the Federation in Atlantic City, New Jersey.

Other Duke doctors honored were Dr. Samuel P. Martin, associate professor of medicine, elected a member of the Society; and Dr. John B. Hickam, associate professor of medicine, appointed to a one year term as counselor to the Federation.

At an earlier meeting of the American Gastroenterological Association in Atlantic City, Dr. Julian M. Ruffin, professor of medicine at Duke, was elected first vice president.

* * *

Three Duke University researchers are among 71 recipients from throughout the nation who have recently been awarded U. S. Public Health Service fellowships for medical research.

Arthur F. Dratz of Oak Hill, New York, U. S. Public Health Service fellow in biochemistry, has been granted \$1,333 for studies of carbohydrate metabolism in the kidney.

Glen Roy Gale of Mount Croghan, South Carolina, U. S. Public Health Service fellow in physiology, received \$2,000 for study on a fungus which causes a disease similar to tuberculosis. In this study, Gale is conducting a series of tests to determine the effect of the fungus on isolated enzyme systems, on experimentally chronic infected mice, and on growth.

Irving Green of New York City, research assistant in biochemistry, has been granted \$2,000 for research on the metabolism of enzymatic and contractile systems.

* * *

The current issue of the *Medical Archives of Cuba*, leading Cuban medical journal, features the Duke University Medical School.

Some 15 Duke University doctors contributed six articles to the issue, which carries a picture of the Duke Medical School and a review of the school's 21 year history.

Duke participated in the issue at the invitation of Dr. Carlos A. Fernandez, director and founder of the Cuban publication. The articles, ranging from brain surgery to treatment of high blood pressure, were compiled and submitted at the request of Dr. W. C. Davison, dean of the Duke Medical School, through Dr. Clarence E. Gardner, Jr., professor of surgery.

* * *

American money and know-how is paying off in Formosa, F. Ross Porter, Duke Hospital superintendent, said recently.

Porter has returned from an assignment in Formosa as consultant to the Mutual Security Agency. He and Dr. V. M. Hoge, assistant surgeon general of the U. S. Public Health Service, surveyed the provincial hospital system.

NEWS NOTES FROM THE NORTH CAROLINA TUBERCULOSIS ASSOCIATION

Dr. Ringer Dies In New York

Dr. Paul H. Ringer, one of Asheville's most prominent physicians for more than 40 years, died in New York City recently at the age of 70.

Born in New York City in 1881, Dr. Ringer came to Asheville in 1906, where until recent years he had been active in a variety of civic organizations. He received his degrees of bachelor of arts and doctor of medicine from Columbia University and took internships at St. Luke's Hospital, Bethlehem, Pa., and Roosevelt Hospital, New York City.

On establishing residence in Asheville, Dr. Ringer's interest turned to diseases of the chest, and for many years he was associated with the late Dr. Charles R. Minor in this specialty. Active in tuberculosis work throughout the state, he served on the Board of Directors of the North Carolina Tuberculosis Association for a period of 12 years. He was

a past president of the North Carolina Medical Society, a president of the Southern Tuberculosis Conference, and vice president of the National Tuberculosis Association.

* * *

Miss Elizabeth Smith of Goldsboro is the new president of the North Carolina Tuberculosis Association. Miss Smith was unanimously elected to the post at the annual meeting of the NCTA held in Raleigh on April 23-24. She succeeds Roland L. Garrett of Elizabeth City.

Other officers and executive committee members elected at the meeting included: vice president, Dr. A. Derwin Cooper, Durham; secretary, Dr. R. B. C. Franklin, Mount Airy; treasurer, T. W. Steed of Raleigh; Roland L. Garrett, Elizabeth City; Dr. C. D. Eatman, Rocky Mount; Mrs. Jeff Johnson, Raleigh, Ralph H. Scott, Burlington; and Dr. Lynwood Williams of Kinston.

New members at large on the Board of Directors are: A. L. Bechtold, Charlotte; Dr. D. R. Chadwick, Oxford; Harold Myrick, Lincoln; Mrs. J. Roy Parker, Ahoskie; Dr. Gordon M. Wilkins, Charlotte; and Dr. S. D. Williams of Elizabeth City.

New representative members of the Board of Directors approved at the meeting included: Mrs. Graham Poyner, Raleigh; Morris Lipinsky, Jr., Asheville; Mrs. John S. Forrest, Hendersonville; and Tom Woodard of Wilson.

One honorary member, Mrs. M. H. Courtney of Charlotte, was also elected at the meeting.

* * *

Frank W. Webster, Executive Secretary of the North Carolina Tuberculosis Association for the past 13 years has resigned in order to become Executive Secretary of the American Trudeau Society, with headquarters in New York.

* * *

William D. Braswell has been appointed as a field secretary on the North Carolina Tuberculosis staff.

* * *

Complete returns for the 1951 Seal Sale show an increase over 1950 of \$18,862.54 or 4.5 per cent. The total sale for 1951 amounted to \$441,067.00 while the 1950 sale amounted to \$422,204.46. The largest increase was shown by the Beaufort County Tuberculosis Association with a sale amounting to \$8,312.25 or \$6,878.42 more than 1950.

Highest per capita sale for counties with paid workers was shown by the Alamance County Tuberculosis Association (24.3). For voluntary associations, Beaufort County led the way with a 22.4 cents per capita. The per capita contribution for the state as a whole was 10.9 cents.

* * *

Dr. E. E. Menefee, Jr., of the School of Medicine, Duke University, was elected president of the North Carolina Trudeau Society at its annual meeting held in Raleigh on April 23. Dr. Menefee succeeds Dr. R. B. C. Franklin of Mount Airy.

Other officers elected at the meeting were: vice-president, Dr. C. D. Thomas, Western North Carolina Sanatorium at Black Mountain; secretary-treasurer, Dr. Hege Kapp of Winston-Salem.

The featured speaker for the annual meeting, held in the Sir Walter Hotel, was Dr. David A. Cooper, president-elect of the American Trudeau Society. After the scheduled program, a short business meeting was held during which an invitation for membership in the society was extended to those Wake County doctors who were not present members of the organization.

NORTH CAROLINA HEART ASSOCIATION

Two new publications of interest to physicians are announced by the North Carolina Heart Association. They are available free on request from the Association's state headquarters, Miller Hall, Chapel Hill, or from any chapter.

First of these is a revision of the wall chart, "The Classification of Patients with Diseases of the Heart," which has gained wide acceptance as a guide to functional capacity and therapeutic classification of a cardiac patient. Prepared by the Criteria Committee of the New York Heart Association under the chairmanship of Dr. Harold E. B. Pardee, the chart has proved useful in helping the physician to determine broadly how much activity the patient can perform, and provides a simple code for communicating with other physicians or with hospital or clinic personnel.

"Diseases of the Heart and Blood Vessels—Facts and Figures," a statistical booklet published by the American Heart Association in cooperation with the National Heart Institute, gives basic facts essential to understanding the place of heart disease as a major health problem of the times. The data are presented in a series of graphic charts, each of which is accompanied by a short statement of interpretation, understandable to the layman as well as the professional. A valuable feature is the list of simple definitions of the medical and statistical terms used.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

The Board of Medical Examiners will meet at the Sir Walter Hotel, Raleigh, on Saturday, August 2, 1952, at 9 a. m. for the purpose of interviewing applicants for licensure by endorsement of credentials.

NORTH CAROLINA ALCOHOLIC REHABILITATION PROGRAM

Inventory, North Carolina's bi-monthly magazine on alcoholic rehabilitation and emotional health education, entered its second year of publication last month with a 36 page May issue devoted largely to Alcoholics Anonymous, the society of recovered problem drinkers.

In announcing its first anniversary, S. K. Proctor, director of the North Carolina Alcoholic Rehabilitation Program which publishes the journal, explained, "During the first year of publication, write-in requests for a place on the mailing list came from 175 North Carolina communities, 30 states, 4 Canadian provinces, and one foreign country. **Inventory** now goes to 12,000 readers, professional and lay citizens interested in the problems of alcoholism."

Inventory is a public information service free to all groups and private citizens interested in rehabilitation through treatment and in prevention through education. Widespread use of the journal, especially by ministers, physicians, teachers, social, and health workers, is encouraged. For a place on the free mailing list, write **Inventory**, Box 9118, Raleigh, North Carolina.

NEW HANOVER COUNTY MEDICAL SYMPOSIUM

The annual symposium of the New Hanover County Medical Society will be held at Lumina Ballroom, Wrightsville Beach, on Friday, August 22, 1952. Speakers will be: Dr. H. Hudnall Ware,

Jr., professor of obstetrics, Medical College of Virginia, Richmond; Dr. Virgil P. W. Sydenstricker, professor of medicine, Medical College of Georgia, Augusta; Dr. E. P. Pendergrass, professor of radiology, University of Pennsylvania Medical School, Philadelphia; Dr. Joseph Stokes, Jr., professor of pediatrics, University of Tennessee College of Medicine, Memphis.

This symposium is approved by the American Academy of General Practice for postgraduate training.

The meeting will include a barbecue dinner and social hour in the evening.

FORSYTH COUNTY MEDICAL SOCIETY

Dr. Clarence E. Davis, assistant professor of obstetrics and gynecology at Duke University, addressed the Forsyth County Medical Society at its monthly dinner meeting held on May 13. His subject was "Infertility in Male and Female."

NEWS NOTES

Dr. F. M. Simmons Patterson and Dr. Joseph F. Patterson have announced their association in the practice of general surgery, with offices at 408 Broad Street in New Bern.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

1952 Award Contest

The National Gastroenterological Association again takes pleasure in announcing its Annual Cash Prize Award Contest for 1952. One hundred dollars and a certificate of merit will be given for the best unpublished contribution on gastroenterology or allied subjects. Certificates will also be awarded those physicians whose contributions are deemed worthy.

Contestants residing in the United States must be members of the American Medical Association. Those residing in foreign countries must be members of a similar organization in their own country. The winning contribution will be selected by a board of impartial judges and the award is to be made at the Annual Convention Banquet of the National Gastroenterological Association in October of 1952.

Certificates awarded to other physicians will be mailed to them. The decision of the judges will be final. The Association reserves the exclusive right of publishing the winning contribution, and those receiving Certificates of Merit, in its official publication, *The Review of Gastroenterology*.

All entries for the 1952 prize should be limited to 5,000 words, be typewritten in English, prepared in manuscript form, submitted in five copies accompanied by an entry letter, and must be received not later than September 1, 1952. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23, New York.

* * *

Course in Postgraduate Gastroenterology

The National Gastroenterological Association announces that its fourth annual course in postgraduate gastroenterology will be given at the Hotel Statler in New York City on October 23, 24, 25, 1952.

As in past years the course will again be under the direction and co-chairmanship of Dr. Owen H. Wangenstein, professor of surgery of the University of Minnesota Medical School, who will serve as surgical co-ordinator, and Dr. I. Snapper, director of medical education of the Mt. Sinai Hospital, New York, who will serve as medical co-ordinator.

AMERICAN COLLEGE OF SURGEONS

New surgical techniques and clinical developments will be presented at the thirty-eighth annual Clinical Congress of the American College of Surgeons to be held in New York City September 22 to 26. More than 9,000 surgeons from all over the world are expected to attend the program of panel discussions, symposiums, surgical forums, motion pictures, cine clinics, color television and exhibits. Headquarters will be at the Waldorf-Astoria. Dr. Frank Glenn, surgeon-in-chief, New York Hospital, is chairman of the New York Committee on Arrangements.

Dr. Alton Ochsner of New Orleans, 1952 president of the American College of Surgeons, will preside at the opening evening sessions, at which Dr. Harold L. Foss of Danville, Pennsylvania, will be installed as president for the year 1953. Dr. Everts A. Graham of St. Louis is chairman of the Board of Regents, and Dr. Paul R. Hawley of Chicago is the director.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

Doctors who could not personally attend the American Medical Association's annual meeting June 9 to 13 in Chicago had the opportunity of viewing its high lights via television. As the nation's top medical authorities reported to doctors on the latest medical developments, NBC mobile TV units moved through the corridors of the exhibit hall at Navy Pier, transmitting the news coast-to-coast. The telecasts were sponsored by Smith, Kline and French, Philadelphia pharmaceutical firm.

* * *

The A.M.A.'s membership department has gone mechanical. To facilitate the processing of membership records, more than 350,000 IBM cards—approximately two and one-third cards per A.M.A. member—have been added to the department's files. These cards contain statistics such as the physician's dues payment, specialty, medical school, date of graduation, address, and birth date. This new system will make possible a record of membership which can be readily tabulated and processed.

* * *

To create a better understanding of one of the major causes of patient-doctor misunderstanding—the cost of illness—a new pamphlet has been designed for public distribution. Entitled "Your Money's Worth in Health," the booklet stresses the various aspects of patients' medical bills and the cost of illness in relation to the national income. The pamphlet shows graphically that the cost of illness has not risen as much or as rapidly as other consumer goods. This illustrated eight page pamphlet soon will be made available to A.M.A. members and medical societies for distribution to the general public.

* * *

Three new chapters have applied for membership in the Student American Medical Association, bringing the total number of active and provisional chapters to 47. The new groups are located at Western Reserve University, the University of Southern California, and the State University of New York at Brooklyn. Organizational plans are being developed at other schools, including Northwestern, Vanderbilt, Tennessee, Cincinnati, New York Medical College, Iowa, North and South Carolina, Minnesota, and West Virginia. Recently the Student A.M.A.'s executive council voted to change the annual meeting date from December to June, effective with the 1953 meeting.

* * *

The Board of Trustees has announced the appointment of a full-time executive secretary for the American Medical Education Foundation. Mr. Hiram W. Jones, former director of finance for the Chicago region of the National Conference of Christians and Jews, assumed his duties with the foundation May 1. An intensified campaign among state societies for voluntary contributions for the foundation is being conducted this spring. Russell F. Staudacher, who formerly directed the activities of both the American Medical Education Foundation and the Student American Medical Association, will devote his full time as executive secretary of the Student A.M.A.

AMERICAN COLLEGE OF RADIOLOGY

An editorial in the May issue of *The American Journal of Roentgenology and Radium Therapy* said that "vitamin A concentrates are probably superfluous, certainly expensive, and potentially toxic preparations which should not be placed in the hands of mothers for daily feedings to healthy children."

Citing the dangers of vitamin A poisoning, especially among children who are not suffering from dietary deficiencies, the editorial said that medical control of vitamin administration at home is extremely difficult because "the public gets most of its information concerning the magic of vitamins from commercial advertising."

"Commercial advertising," the editorial continued, "is understandably designed to create public belief that there is a widespread need for daily supplementary intake of vitamin A, that daily supplements prevent and cure a host of indefinite common complaints, and that vitamin A concentrate is harmless. Physicians are almost helpless against the commercial exploitation which gushes endlessly."

"The poisoning of healthy American children in the prophylactic feeding of vitamin A concentrates," the editorial continued, "is especially regrettable because it is highly probable that there is no deficiency of vitamin A in ordinary infantile and juvenile diets in the United States."

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

In training the cerebral palsied child to speak, first consideration should be given to his psychologic, social and physiologic readiness and then to the direct speech training methods, according to Harold Westlake, Ph.D., director of the speech and hearing clinic, Northwestern University.

To achieve this, Dr. Westlake has evolved a system during his years of work in the field which is detailed in a comprehensive guide entitled "A System for Developing Speech with Cerebral Palsied Children," just published by the National Society for Crippled Children and Adults. Dr. Westlake, in addition to his position at Northwestern, is counselor in speech pathology and audiology to the National Society—the Easter Seal Society—and is president of the American Speech and Hearing Association.

Copies of "A System for Developing Speech with Cerebral Palsied Children" are available at 25 cents each from the National Society for Crippled Children and Adults, 11 S. La Salle Street, Chicago 3, Illinois.

WORLD MEDICAL ASSOCIATION

Medical Editors Meeting

Following the Sixth General Assembly of The World Medical Association in Athens, Greece, October 12-16, 1952, there will be a meeting of the

Medical Editors of the World, Friday, October 17, 1952.

The tentative program for the conference includes medical-political editorials, control of advertising in medical publications, the extension of medical information through abstract services, and medical publications in Latin America, in addition to a round table discussion on practical matters of medical publications (to include authors reprints, exchanges, etc.).

INTERNATIONAL FERTILITY ASSOCIATION

On October 18, 1951, in Rio de Janeiro, Brazil, delegates from 12 nations founded a new world medical society known as the International Fertility Association. The aims of this organization are:

1. To study the problems of fertility and sterility in their broad implications.
2. To stimulate scientific investigation and social awareness in the field of fertility and sterility.
3. To standardize and orient nomenclature, terminology, tests, and evaluation of diagnostic methods and therapy, throughout the world.
4. To hold international congresses in the specialty in different parts of the world. These congresses are to be regularly scheduled.

The First World Congress on Fertility and Sterility sponsored by the new society will be held in conjunction with the American Society for the Study of Sterility in New York City in May, 1953.

For further information, write to Dr. Carlos D. Guerrero, Secretary-General, Miguel E. Schulz No. 19, Mexico, D. F., or to Dr. Abner I. Weisman, Associate Secretary-General, 1160 Fifth Avenue, New York, New York.

(BULLETIN BOARD CONTINUED ON PAGE 316)

Classified Advertisements

WANTED

Young physician to take over large general practice and small fully equipped clinic in desirable North Georgia resort community for two years while present physician is in the Armed Services. For more details contact R. A. Burns, M.D., Box 435, Blue Ridge, Georgia.

Iodized Salt Substitute Offered By Winthrop-Stearns

Neocurtasal Iodized has been introduced by Winthrop-Stearns, Inc., as an iodinated salt substitute for use in low-salt and sodium-free diets, according to a company announcement. It was developed as a supplement to Neocurtasal, previously introduced by the company.

Iodine was added to Neocurtasal because of its role as an essential food constituent, Winthrop-Stearns notes, adding that iodine directly affects all metabolic functions of the body. An insufficient intake of iodine may lead to a deficiency disease such as goiter, which is endemic in certain parts of the United States. The Central Plains region of the country suffers a high incidence of goiter, it is pointed out, due to the low amount of iodine present in the soil and food.

Neocurtasal Iodized is especially recommended when low-salt diets are prescribed for pregnant women, according to Winthrop-Stearns.

IN SUMMER ALLERGIES...

*transform discomfort
into well-being*



Such a transformation initiated by Neo-Antergan enables many allergy patients to live comfortably through difficult Summer months when pollen levels soar.

By effectively blocking histamine receptors, Neo-Antergan brings significant symptomatic relief with a minimum of undesirable physiologic effects.

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AUXILIARY

FOR YOUR INFORMATION

Heretofore, your Auxiliary has utilized its Auxiliary page in the NORTH CAROLINA MEDICAL JOURNAL for items of interest to members of the Auxiliary and their physician husbands. However, they have, in the last year, taken a step forward in publishing their own "Auxiliary News"—edited by Mrs. C. A. McNeil, Jr., of Elkin. So far, there have been three issues. We would urge you to ask your wife to give you the privilege of reading these issues, as they contain news of our activities which will amaze you. We would like to point out, however, that copies of these go only to members of the Auxiliary—a further reason for all doctors' wives to join up. We would also like to acknowledge here our gratitude to the Hospital Care Association of Durham, which is underwriting our first four issues. It is our plan at present to utilize our Auxiliary page in the JOURNAL hereafter for the purpose of letting you know what your Auxiliary is doing in any way in which we believe you may have particular interest.

You will be proud to know that your Auxiliary is now a member of the North Carolina State Family Life Council and the North Carolina Health Council. This is certainly indicative of our active participation in affairs which touch directly on the medical profession. Again this year we were invited to attend the Advisory Committee of the State Nurses' Association Meeting, which we did. We hope that through this association we will have a better understanding of their problems and be able to assist them more intelligently. At the time of the meeting our Auxiliary donated \$200.00 toward the printing and distribution of a pamphlet on the recent report of the North Carolina Committee to Survey Nursing Needs in North Carolina and Nursing Education. So our aid is concrete as well as abstract.

Always conscious of our part in the drive against socialized medicine, we have continued to secure resolutions against this type of legislation, and a great deal of material has been distributed to laymen for the National Education Campaign of the A.M.A. Over 105 resolutions have been reported this year.

Our Auxiliary president, Mrs. B. W. Rob-

erts, has been appointed to serve on the commission to study the financing of hospital care in North Carolina. Here again we are being allowed an opportunity to make our voice heard in the interest of health care throughout the State.

Of monetary interest is the fact that we have finished, this year, the \$10,000 Stevens Bed Endowment Fund; the McCain Endowment Fund was finished in 1950. We shall be taking up two new projects at the May meeting. The amount obtainable by doctors' children in the form of a Student Loan Fund has been advanced from \$100.00 to \$500.00 a year.

Growth: Four new County Auxiliaries have been formed—Person, Onslow, Franklin, and Randolph. We are growing by leaps and bounds, and our importance in your professional lives as public relations officers must never be underestimated. We have time for many things which you in your very busy profession do not have, and one of our chief aims is to further better understanding between the laymen and the medical profession. Working together we can accomplish much more than working singly. Your Auxiliary is not just a social organization intended to give wives of doctors an opportunity to get together and gossip or commiserate with one another because they have married doctors. We are a working unit, a group which wishes to serve our communities and our State to the best of our ability. From all that is being done, it is no mean ability. For just one example, observe the excellent work the Auxiliary has been doing in the opening of new hospitals all over the state. There is a definite need for us—and we are filling that need. Urge your wives to join the Auxiliary—not just as "paid-up members" but as active, working members. We need them because you need us.

We know you will be glad to hear that almost every county auxiliary observed Doctors' Day on March 30 in some fitting way, thus making communities more cognizant of the doctor's importance to the community.

One more thing: the president of the Auxiliary is a participating board member of the American Cancer Society, North Carolina Division.

All the above is merely a thumbnail sketch of your Auxiliary's activities. We merely want to point out that you must never underestimate the power of a woman—especially if she is a member of the Auxiliary.

BOOK REVIEWS

Current Therapy 1952. Edited by Howard F. Conn. 849 pages. Price, \$11.00. Philadelphia and London: W. B. Saunders Company, 1952.

This volume has proven increasingly popular with practicing physicians. Each year a large group of experts in various diseases are asked to revise their concept of therapy, bringing it up to date. Each article is complete in itself, and is not written from the point of view of a description of recent advances only. Where more than one point of view may be held, two authors will each write a section independently. One interesting innovation in a book of this type is the rotation of authors after three years so that no section may become stagnant.

The book is divided into sections by types of disease, such as the generalized infectious diseases and respiratory, cardiovascular and digestive diseases. In each section the individual diseases are discussed. In a book with so many different authors, including 189 new contributors this year, the style is quite variable. Fewer articles this year are written in telegraphic style. Each article makes liberal use of headings to separate acute from chronic instances of the disease, and to separate general from specific measures. Dosages of drugs are given in detail, and in many instances complete prescriptions are included. Outlines and tables for ready reference are used.

The format is pleasing, with large type set in two columns to a page. No illustrations are used and no bibliography is included. The book admirably serves as an authoritative up-to-date discussion of proven methods of treatment and could be particularly useful to busy general practitioners who may see some diseases infrequently.

Heart Disease. By Paul D. White, M.D., Executive Director, National Advisory Heart Council; Consultant to the Massachusetts General Hospital, Boston; Recently Clinical Professor of Medicine, Harvard Medical School. Ed. 4. 1015 pages. Price, \$12.00. New York: The MacMillan Company, 1951.

The fourth edition of this standard work has been enlarged in format and generally improved. More emphasis is given throughout the book to historical orientation of the subject. A mural is reproduced in color at the frontispiece, and the first chapter is devoted to the evolution of our knowledge of the heart. Many chapters start with a short historical quotation.

The first part of the book is devoted to the symptoms and signs elicited in examination of the cardiovascular system. The range of findings in the normal heart is first discussed. The techniques of elicitation of signs, as well as their interpretation, is described. Separate chapters are devoted to determinations of the blood pressure, x-ray techniques, a list of cardiographs, and other methods of recording the pulsation of heart and blood vessels. The chapter on the electrocardiogram has been revised to include material on special leads and vector analysis. The second part of the book discusses the causes and types of heart disease. The significance and prevalence of each type of disease is discussed in relation to the social and economic aspects of heart disease. The third part of the book discusses structural cardiovascular abnormalities with separate chapters on the myocardium valve, pericardium, and the peripheral blood vessels. The fourth part of the book discusses disorders of cardiovascular function

with chapters on congestive failure and disorders of rhythm, as well as a chapter on peripheral vascular dysfunction.

Many simple line drawings are included in the book. Various technical charts illustrating physiologic principles are reproduced. The bibliography is quite good. References are given at the end of each chapter and the reader is referred to other chapters under which associated references may be found. Classical references and those in the older literature are separated from the recent references in the years 1944 to 1950. The book is an excellent one from the clinical point of view for medical students, house officers, and practicing physicians.

The Clinical Use of Fluid and Electrolyte. By John H. Bland, M.D. 259 pages. Price, \$6.50. Philadelphia: W. B. Saunders Company, 1952.

This book is a rather comprehensive review of the normal electrolyte distribution in plasma, interstitial, and intracellular fluids, and the disturbances in this distribution in: water and sodium chloride depletion, congestive heart failure, potassium metabolism, pediatric patients, the aged and aging, surgical patients, renal disease, diabetes, diabetes mellitus, adrenal cortical insufficiency, syndromes due to exposure of the body to heat, and in shock, burns and other forms of traumatic injury. A chapter describes the physiologic effects of ACTH and cortisone in body fluid and electrolytes.

The book is largely a compilation of the work of other investigators, and contains numerous references to their work. Extensive and occasionally excessive use is made of the Gamble type of chart in explaining the shifts in ionic concentrations. These charts, while satisfactory, are more complicated than necessary in many instances, and would have been more effective had the abnormal been placed beside rather than below the normal. Adequate and easily read verbal description accompanies the charts.

There is little discussion of the disturbances in hydrogen ion concentration which may accompany electrolyte shifts.

The book is published by the inexpensive photo offset process. It will be useful to students, physicians, and surgeons interested in electrolyte disturbances.

Diabetes in Pregnancy. By Ralph A. Reis, M.D., Evan J. DeCosta, M.D., and M. David Allweiss, M.D. 88 pages. Price, \$2.50. Springfield, Illinois: Charles C Thomas Company, 1952.

This book is a 72 page, well prepared discussion of diabetes during pregnancy. The book is divided into 14 chapters, beginning with the definition of diabetes and consideration of the various types which might be found. It includes also a discussion of the effects of pregnancy on diabetes, as well as the effects of the diabetes on pregnancy.

The principles of management of the diabetic are completely outlined, and the book concludes with a discussion of the newborn infant of the diabetic mother.

The authors point out that, although pregnancy presents a formidable problem in diabetes, careful management by the obstetrician and the physician caring for the diabetic patient will result in satisfactory termination of the pregnancy.

The book is extremely well written and understandable, and it should be in the possession of any person practicing obstetrics.

Their Mothers' Sons. By Edward A. Strecker, M.D. Ed. 2. 237 pages. Price, \$3.50. Philadelphia and New York: J. B. Lippincott Company, 1951.

In this very readable and enlightening book, Dr. Strecker has pointed up the greatest weakness of present day as well as all past civilizations—immaturity. In spite of great technological advances, we as human beings have failed to grow up emotionally. Even with all the opportunities and advantages that our democratic way of government affords us, we in the United States of America have failed in this area of maturation. The author gives statistical evidence in the numbers of rejections and casualties, for psychiatric reasons, in World War II to support this truth.

He traces this failure to its source, the "mom," the emotionally immature and sick pseudo-mother. In fairness to these sick women who prevent their children from growing up, he recognizes that there are "momarchial" tendencies in our democracy which foster "momism" and permit it to exist. He points out the real and imminent danger to our democratic ideal and way of life in this expose' of the evils of overprotection, overindulgence, and fostering of the desire and need for self-satisfaction, without the balance of a sense of duty, of responsibility to and consideration for others. Balance and adaptability are measures of maturity, and happiness and satisfaction in life stem directly and proportionately from these as by-products. He also brings to light some of the fallacies in our mass production, industrial, and economic systems. There is need in each individual for more creative self-expression, more purpose in his or her life. In addition, there is need for more time and opportunity for quiet speculation, amalgamation, and spiritual communing.

Dr. Strecker in several chapters tells us about "mom," what she is and how she is. He contrasts "mother" and "mom," points out their similarities and differences. There are no real absolutes in life, and the shading between these two types is sometimes difficult to distinguish. There are many shades of gray between the black and the white, and so it is a matter of degree of "momism" also. He traces "mom's" development from her "mom," through the insecurity, the emotional frustration, the resulting hostility and resentment, not accepted and so leading to guilt and repression. He recognizes the tremendous responsibility that mothers have in shaping the future of our nation and the world. He has great sympathy for them, and great admiration for those who do a good job. He has had much experience with the offspring of those who have failed in this all important task of directing and encouraging maturation. He has little hope that a severe case of "momism" can be altered appreciably, but there is hope that with proper outside guidance, healthy environmental situations, and stimulating people and experiences some of the casualties of "mom" can be rehabilitated, and better still, if gotten at early enough, can be helped to grow to maturity in spite of "mom." He does not neglect to point out the many mom-substitutes that the immature cling to in their efforts to achieve an adjustment in life—alcohol, "isms" of all sorts, and so forth. He urges that more time, effort, and money be spent in educating the public to the need for emotional growth and the means whereby it can be attained.

Finally, in the last chapter, Dr. Strecker points up a parallel between the Russian communistic and the American democratic personality. Each is immature; each is on the defensive. He traces the Russian back to the "swaddling clothes"—the overly rigid, strict, repressive type discipline in a paternalistic setting, which leads to repressed hostility

and resentment, and suspicion of anything different. He recognizes this attitude as a threat to the free world. But he faces up also to the fact that the selfish, self-centered, over-protected and over-coddled child is equally as immature and equally as great a threat to the free world. He feels that the danger is imminent and that now is the time for us to face this problem of immaturity and to do all that we can to grow up as individuals, as a nation, and as a free world.

Diagnostic and Experimental Methods in Tuberculosis. By Henry S. Willis, M.A., M.D., F.A.C.P., Superintendent and Medical Director, North Carolina Sanatoria, McCain, North Carolina; and Martin M. Cummings, M.D., F.C.C.P., Director, Tuberculosis Research Laboratory Lawson Veterans Administration Hospital, Veterans Administration, Chamblee, Georgia. Ed. 2. 373 pages. Price, \$10.00. Springfield, Illinois: Charles C Thomas, 1952.

This small book is the second edition of a work which first appeared in 1928. It is written with emphasis on simple dependable diagnostic methods applicable to a physician's office. Many minor errors in technique commonly made in the laboratory are pointed out, along with methods of avoiding these pitfalls. The authors have clearly indicated their own personal evaluation of the methods discussed. They have cited examples where the methods in their hands have not lived up to first reports. Little evaluation is given of media which have been introduced since 1947. The new methods of determining the *in vitro* susceptibility of organisms to streptomycin and para-aminosalicylic acid are given in detail. Indeed, the directions for performance of tests are given so simply and in such complete detail that it should be possible for any technician in any laboratory properly to perform the diagnostic tests. The written descriptions are well illustrated by clear-line drawings.

The first portion of the book is concerned solely with laboratory diagnosis. The various materials sent to the laboratory are described along with the characteristics of the tubercle bacillus. Staining culture and animal inoculation techniques are then described. The second portion of the book is concerned with related clinical and laboratory methods. The technique of giving the protective vaccine and of using the diagnostic material tuberculin is described. The newer serologic tests are discussed. The third part of the book discusses methods for the study of experimentally produced tuberculosis. The technique of inoculation of animals with various strains of tubercle bacilli, and the description of the results to be expected in the gross and microscopic findings, are described.

The book should prove of great value in hospital and sanatorium laboratories. The profession in North Carolina is to be congratulated on having such a distinguished author among its members.

JOURNALS WANTED

The publishers of the NORTH CAROLINA MEDICAL JOURNAL are in need of additional copies of the JOURNAL for July, 1951. Thirty cents will be paid for each copy of this issue which is received in good condition at Carmichael Printing Company, 118 West Third Street, Winston-Salem 1, North Carolina.

BULLETIN BOARD

(CONTINUED FROM PAGE 311)

THIRD COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE

The Duchess of Kent, president of the National Association for the Prevention of Tuberculosis, has promised to attend the Association's Third Commonwealth and Empire Health and Tuberculosis Conference to be held in London in July. Her Royal Highness was also present at the 1947 and 1949 conferences organized by the NAPT, which for over 50 years has been in the forefront of the campaign for the control of tuberculosis.

DEPARTMENT OF THE ARMY

More than 1,500 members of units of the Reserve Officers' Training Corps at medical, dental, veterinary, and pharmacy schools throughout the country will participate in professional and field training to be held this summer at nine Army medical installations, the Department of the Army announced recently. Excluding last year's class, the group is the largest to take summer training since the establishment of the Army Medical Service ROTC program.

Medical ROTC members are proffered Reserve commissions as first lieutenants in the Medical Corps upon graduation, but are assured of at least one year's civilian internship before being called to active duty unless selected for a military internship.

FEDERAL SECURITY AGENCY

Public Health Service

Appointment of Dr. Otis L. Anderson as chief of the Bureau of State Services, Public Health Service, was announced recently by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service of the Federal Security Agency.

Dr. Anderson succeeds Dr. Joseph W. Mountin, who died suddenly on April 26.

A former associate chief of the Bureau of Medical Services, Dr. Anderson will direct the broad Federal-State and interstate programs of the Service. These programs encompass most of the public health activity carried on in cooperation with the states and with local communities. They include work in the fields of tuberculosis, venereal diseases and chronic diseases, water pollution control, occupational health activities and vital statistics, along with the administration of the Public Health Service grant-in-aid program to states.

* * *

Dr. George Walter McCoy, internationally known scientist and, from 1915 to 1937, Director of the National Institute of Health, principle research facility of the U. S. Public Health Service, died April 2, 1952, in Washington, D. C., after a short illness. He was 75 years old.

One of the nation's top authorities on leprosy, Dr. McCoy was also widely recognized for his contributions in such fields as plague, tularemia, psittacosis, post-vaccination complications, and biologics control. He entered the Public Health Service in 1900, headed the U. S. Plague Laboratory in San Francisco from 1908 to 1911, and was director of the Leprosy Investigation Station in Hawaii from 1911 to 1915. In the latter year he became director of the Hygienic Laboratory, later renamed the National Institute of Health.

* * *

New research findings which may lead to a routine blood test for detection of early hardening of the arteries, and at the same time provide physicians with a blueprint to counter defects in blood causing the condition, have been reported by the Public Health Service of the Federal Security Agency.

The findings stem from research on the role of heparin in the body's ability to handle fat, conducted by Drs. Christian B. Anfinsen, Ray K. Brown, and Edwin Boyle, National Heart Institute of the National Institutes of Health.

Heparin is most widely known as an anti-clotting agent, used in heart attacks and to improve circulation in frostbite.

A complete report of the research study was published in the technical journal, *Science* (May 30). The work—a nine month investigation—has been carried on as a part of the research program of the National Heart Institute laboratories in Bethesda, Maryland.

UNITED STATES ATOMIC ENERGY COMMISSION

More than 600 universities, hospitals, and research laboratories in 46 states are using isotopes produced by the U. S. Atomic Energy Commission for medical, biologic, industrial, agricultural and scientific research, and medical diagnosis and treatment, the Commission stated in a recent report.

The report, "Isotopes—A Five Year Summary of U. S. Distribution," is available to the public from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for \$1.00 per copy. A summary of isotope applications considered to be of significance to industry has been compiled from the Five Year Summary and printed separately as document TID-5078 available at the Office of Technical Services, Department of Commerce, Washington 25, D. C., for 30 cents per copy.

* * *

The resignation of Dr. Shields Warren as director of the U. S. Atomic Energy Commission's Division of Biology and Medicine and the appointment of Dr. John C. Bugher as his successor was announced recently by M. W. Boyer, AEC General Manager. Dr. Warren's resignation as Division Director is effective June 30, 1952, but at that time he becomes a member of the AEC's Advisory Committee for Biology and Medicine.

VETERANS ADMINISTRATION

A North Carolinian, Dr. Jesse F. Casey, manager of the Veterans Administration Hospital at Topeka, Kansas, transferred to the VA Central Office in Washington, D. C., June 8, 1952, as chief of the Hospital Psychiatry Section, Psychiatry and Neurology Division, VA announced.

Dr. Casey will be succeeded by Dr. Robert C. Anderson, chief of Professional Services at the Topeka Hospital.

In his new position, Dr. Casey will be concerned with the psychiatric program in VA's 34 neuropsychiatric hospitals and in 75 other VA Hospitals having neuropsychiatric sections.

Dr. Casey is a native of Goldsboro, North Carolina. He obtained his A.B. degree in June, 1925, from Guilford College, Guilford, North Carolina, and his M.D. degree from the George Washington University School of Medicine in Washington, D. C., in 1931. He served his internship at St. Elizabeth's Hospital in Washington, D. C., and took his residency training in psychiatry at the same hospital.

Both Dr. Casey and Dr. Anderson have worked closely with the extremely large residency training program at the VA Hospital in Topeka in conjunction with the Menninger Foundation.

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LOOKING AHEAD---FOR HEALTH IN NORTH CAROLINA

J. W. R. NORTON, M.D., M.P.H., F.A.C.P.*

RALEIGH

A detailed report of public health activities is being submitted to the president of the Medical Society and the State Board of Health. As has been done the last three years, our time at this Conjoint Session will be used to discuss matters considered of mutual and timely interest to private medical practitioners and to health workers as we work and plan to salvage and rehabilitate those who have become ill or injured, and to maintain and promote ever better medical and health care. The Auxiliary is of increasing importance in service operations, in long range planning, and particularly in our public relations.

You, in private practice, deal with individuals primarily. You hear their complaints, examine, diagnose, and minister to their medical needs. We in public health practice hear the stories of, and serve in a similar manner, the community, county, and state. It is important that private and public health practitioners coordinate their efforts, since one group has constant touch with the needs of the individual, and the other with those of the public. Each has developed teams of co-workers in order to operate more competently and economically. In past generations much of the available time has been used in meeting urgent emergency situations and in travel or subprofessional work. During the last quarter-century remarkable progress has been made in hospital construction, surgical techniques, chemical, antibiotic and hormone therapy, nutrition, rehabilitation, economical screening tests for early case-finding, and more complicated tests for diagnosis and prognosis, environmental sanitation,

and immunizing agents, and in reducing the catastrophic financial shock of sickness by public underwriting of medical costs for the indigent, and by voluntary prepayment plans—complete for those of lower, and partial for upper, income families. The voluntary prepayment plan approved here this week should prove beneficial to the public and to physicians and their interrelationships.

The Need for Public Understanding and Cooperation

Perhaps we have overpublicized the progress we have made, and at times have combined this attitude with a condescending and hurried manner. If physicians are looked on as supermen, both private patients and the recipients of public health services have greater difficulty in understanding how and why there should be any medical or health problems. After seeing medical accomplishments formerly thought to be impossible, the public tends to overlook the difficulties that first had to be overcome, and criticizes anything short of absolute perfection. Shortcomings are magnified and exaggerated. Babe Ruth often got boos when he made only a double or single, and that psychology is behind some of the present day criticisms of doctors. Unfortunately, criticisms tend to snowball with repetition, and I often ask, "What has been your own experience, in your family, with your doctor?" The answer most often is, "He always does everything needed promptly and really does not charge as much as he should." A helpful trend is that even with increasingly crowded curricula, the better medical and dental schools have insisted on better training in sociology, preventive medicine, and public relations.

Read before the Conjoint Session of the State Board of Health and the Medical Society of the State of North Carolina, Pinehurst, May 7, 1952.

*Secretary of the State Board of Health and State Health Officer.

It may be enlightening to contrast the public attitude toward another professional group—lawyers. Do you hear any clamor for “socializing” or regimenting them? Yet our state supports about an equal number of lawyers and medical doctors, and at similar incomes. Lawyers undergo few of the personal sacrifices, take pride in the *status quo*, and follow precedent all the way back for hundreds of years. Except for high retainer fees they do little or nothing to correspond to our preventive medical services. What do they do that compares with the heavy charity service load of almost every private practitioner? They have been given the majority of key posts in all three branches of our government, and enjoy popularity and public acclaim. Even though the lawyers who run our government enjoy this popularity and medical doctors are temporarily under criticism, it would seem short-sighted and extremely uneconomical to place lawyers as costly middlemen between the patient and his doctor in any type of so-called socialization scheme. Interposing a costly and unwieldy bureaucracy as a substitute for the confidential and direct relationship between patient and doctor would not hasten correction of the difficulties we are already on our way toward eliminating.

Doctors are human

We should discourage the idea that physicians are supermen, and as quickly as possible have the public realize that doctors are human beings—just ordinary citizens of the community with a need for study, sleep, and recreation. Many factors influence health. The standard of living is a vital factor. The patient and the public have a considerable responsibility for health standards. Most families, after moving to a new place, wait for an emergency (often at night) to get acquainted with the doctor. Every cross-roads village feels neglected unless a doctor is induced to settle there, and then everyone takes all except minor complaints and emergencies (and except in bad weather and at night) to the larger town or city doctor. Families that do not expect to pay are particularly prone to call the doctor to the home instead of going to his office, and at night when a day call could have been made. One doctor trying to serve a small community, when thus treated, will soon wear out or move away—with rare exceptions, of course. With good roads and telephones available,

every community, whenever possible, should have two doctors rather than one, so that each can live as a human being in the community. I repeat that each doctor is entitled to study, to engage in recreation, and even to become sick or get some sleep. Two doctors in the community will ensure uninterrupted service without the necessity of long distance travel.

Dr. F. R. Taylor, one of our esteemed colleagues, has urged that in any difficulty it is well to start with the statement, “It is my fault.” I have referred to the quirk of human psychology evidenced by the present attitude toward medical doctors and toward lawyers. Have we doctors sufficiently reminded patients and the public that doctors are human beings, and that individual and public understanding, cooperation, and helpful participation are essential in order that the medical teams, private and public, can be of greatest service? Taking the public into active partnership in meeting present needs and in long-range planning will prevent those outside the profession from completely taking over and eventually telling the doctor what to do, and how and when and where.

Physicians have limits of physical endurance. They do their best work only if their patients are well informed and carry out their obligations by maintaining environmental sanitation, coming in for immunizations, and consulting the physician early rather than after an illness or injury has been complicated by delay. Medical and health services are not just handed out on a silver tray by doctors or selfishly withheld by them; in many cases, the individual, the family, the community have hindered or destroyed the effectiveness of the doctor's efforts. Let's admit and correct the unfortunate fact that individual, family, and community responsibility has not kept pace with recent improvements in the training of doctors and in the tools with which they work. This is one of the many joint responsibilities of physicians in public health with those in private practice.

Diamond Jubilee Anniversary

This year we celebrate the Diamond Jubilee Anniversary of the founding of the State Board of Health. It is a time for inventory-taking, for analysis and appraisal, for discreet long-range planning. Our most urgent needs are public understanding, the re-estab-

lishing of local responsibility, and the honest determination of each citizen to do his utmost toward improving medical and health care. In addition to the individual problems referred to, the public fails to provide adequately for training schools for medical and assisting personnel, for neuropsychiatric and tuberculosis hospitals, and for health departments. There is, moreover, much unfair criticism of the doctors in charge of these agencies. Construction and maintenance of schools, hospitals, nurses' homes and health centers, and better distribution of doctors (and assisting personnel) is proving helpful. Maintenance, particularly of our new general hospitals, will require careful immediate and long-range planning, for with the impact of this enormous new financial burden could come overwhelming demands for undue federal support and control.

Participation of Physicians in the Public Health Program

The entire program of the State Board of Health and of the local health departments has been developed under the leadership of the State Medical Society and through medical representatives on the respective boards. The health services have been of enormous public relations value to the physicians of this state, and could be greater if every physician would identify himself with them. A few backward doctors, by ignorance and destructive criticism, prevent fuller capitalization on the good will created by health departments. State funds for health services are appropriated to 20 odd agencies other than the State Board of Health (and local health departments), but on no other board are doctors equally well represented.

No other agency, private or public, can render public health services as competently and economically as your health departments. Many of these services would not or could not be performed elsewhere, and they help the private medical practitioner and the public. Examples are: laboratory services; vital statistics records; immunizations; supervision of midwives; prenatal and well-baby centers; nutrition; school health; protection of water, milk, and food; safe disposal of human wastes; oral hygiene; crippled children's clinics; occupational hygiene; home accident prevention; early case-finding in tuberculosis, venereal diseases, cancer, diabetes, and mental disorders; insect and rodent control; and health education. It is

by working and planning together and by public participation that private and public medical practitioners can enlist appreciation and support for these and all other medical and health services.

Public relations

The Public Relations Committee of the State Medical Society has been helpful. Several weekly newspaper columns, the *Health Bulletin*, and radio broadcasts (including that of the State Board of Health over three major stations) have also been useful in helping to bring public understanding and cooperation nearer to the high level attained and held for technical, medical, and health services.

Certain very active committees are needed in each local medical society, particularly on public relations, public health, and grievances. The public relations committees at this time have an opportunity and a responsibility, heretofore largely overlooked, to inform members of the General Assembly who will meet in January, and these committees should also keep our congressmen informed at all times on legislative matters affecting individual and public health.

Consultation

May I urge each local medical society to arrange one annual meeting at which the local health officer will be required to report on policies and programs? He should be present at the monthly meetings to report on and answer questions regarding current health needs. This is being done in a few counties. Since we have local autonomy and since most of the health work is done in or through local health departments, all private practitioners will thus keep better informed. An active public health committee in each local medical society is needed for consultation with the local board of health and health department, and will assure that our health services are kept in useful fields. Some medical societies are promoting excellent public relations by forming local health councils and making an active partnership with public representatives in this advisory group.

Handling of grievances

More publicity regarding the handling of grievances is desirable. Every effort should be made to improve our reputation (sometimes deserved) for protecting misfeasance and malfeasance whenever perpetrated by a

medical doctor. We protected the public by closing inferior medical schools. More active prosecutions and correction of grievances are needed now on the basis of public protection, and we should continue our good record in this state of avoiding those on the basis of technical medical politics. It will help and not hurt our public relations when we frankly admit that a physician may be able to pass rigid medical examinations without accepting our even more rigid ethical standards. The medical profession should itself be the first to recognize, and assist in correcting its offenders. Being good individually is not enough; failure to eliminate the rare instances of selfishness, greed, dishonesty, or incompetence in our ranks has caused loss of prestige, and could do much toward eventually causing loss of individual freedom in medical and health practice.

Significant Legislation

In my report a year ago, reference was made to efforts by those with limited training who are continually attempting to remove legal distinctions (so called discriminations) between themselves and those more fully qualified. It is urgent that all physicians take a more active interest in legislation, not only by continuing to oppose that which is harmful, but by constructively planning and aiding that which would promote health. Attention is invited to two examples of the latter. A medical examiner bill (erroneously called the coroner bill) was introduced late during the last session of the General Assembly. It would eliminate many of the objections to our present obsolete system, without in any way interfering with the prestige and prerogatives of our coroners. If introduced early in the next session and backed by informed medical practitioners, such constructive legislation should have a better chance of being passed.

Maintaining local autonomy

In North Carolina, the principal local unit of government is the county. Our local health departments enjoy more local autonomy than do those in any other state. Under our system, a public health nurse is assigned to an area of population, performing all services within the area, in contrast to the overlapping, uneconomical plan which provides a specialist nurse for each activity, with one getting in the other's way all over the county. Some of the states, even a few of

large area, are still attempting to operate local health services (so-called), from the state capital. I urge you to look into this situation and to request your congressmen and senators to vote for generalized instead of specialized appropriations for public health. We have to keep nine separate sets of books on federal appropriations, when one for general health would be better. Specialized appropriations result in a larger central overhead expense, with overstaffing by specialists, in the national and state capitals, and less money for the local health departments where practically all the health services are performed. Your study, understanding, and action are solicited, and if you can get the understanding of our legislators it will do much to curb the tendency toward centralization and strengthen the local health units, where your influence and guidance toward more useful service will be felt. Please talk with your local health officer about these specialized versus generalized federal appropriations. There will be an article on the subject in an early issue of the *Health Bulletin*.

Conclusion

As we look ahead to future medicine in North Carolina, I would like to close with excerpts from a recent Commonwealth Fund Report (1949):

"Sometimes the people who are trying to change medicine have a word for the quality they want to add to it . . . **Scientific** medicine . . . was to tease out the physical components of disease and set them in order. It has given us superb microscopy, masterful biochemistry, precision in diagnosis, and—in some areas—brilliant therapy. It has led to the flowering of specialization . . . Specialization has gained at the expense of something equally valuable—a sound general view of the patient. The parts have run away with the whole . . . There are too many people who are allowed to develop ailments that medicine, either alone or in partnership . . . could prevent. All this has become a commonplace criticism of medicine, and many medical educators and other leaders are trying to change the situation.

"There is no one good word to describe what medicine ought now to become. Those who believe doctors should be wiser than they are now deny the exclusive claim of the older medicine to the name **scientific**: they believe medicine should become more scientific, in the sense of admitting data now commonly left out of consideration. Medical progressives use the word **preventive** when they think of what medicine could do before pathology develops; **constructive** when they set 'positive health' as their goal; **comprehensive** when they ask doctors to deal with people whole instead of in parts; **social** when they feel the pressure of the human environment on the individual and want the doctor to be at least aware of it. All these concepts are facets of good medicine; taken together they mean something different from the kind of medicine that now prevails.

Specifically, without leaving out anything that is now essential to good medicine, they add new dimensions to it: breadth, to include more attention to the patient's environment; depth, to include some comprehension of his inner motivations; and duration, to relate the patient's present condition to his past and future."

THE USE OF ELECTROSHOCK THERAPY IN A PSYCHOSIS ASSOCIATED WITH PERNICIOUS ANEMIA

WILMER C. BETTS, M.D.

DURHAM

The fact that only one report has been made of the use of electroshock therapy in a psychosis associated with pernicious anemia, and that the cerebral metabolism was followed in such a patient at Duke Hospital, justifies the report of this case⁽¹⁾.

Experience with Electroshock in Other Organic Psychoses

In the so-called organic psychoses, the psychotic picture is the reaction of the total organism to the noxious agent, metabolic deficit, and so forth, and thus may be termed a symptomatic psychosis. The actual psychosis that results is determined to a large extent by the pre-existing character structure of the individual.

Electroshock therapy has been utilized in treating the psychiatric reaction accompanying organic diseases of the central nervous system other than pernicious anemia. Solomon and associates⁽²⁾ have found that electroshock therapy is useful in terminating the psychotic reactions accompanying general paresis, providing the psychotic picture is predominately an affective one. Kalinowsky and Hoch⁽³⁾ point out that electroshock therapy may be used in treating the frequent depressive reactions encountered in Parkinson's disease, arteriosclerotic brain disease, and senile brain disease.

No reports of cerebral metabolic studies in patients with psychoses accompanying pernicious anemia have been published. In studying patients at Duke Hospital, Scheinberg found a lowered cerebral blood flow and oxygen consumption in patients with pernicious anemia even without anemia⁽⁴⁾. Only one report of cerebral metabolism in

a patient with an affective psychosis is available. The cerebral blood flow was low prior to prefrontal lobotomy in a patient with a manic-depressive psychosis studied by Shenkin and others⁽⁵⁾.

The effect of electroshock therapy on cerebral metabolism has been reported. In some 7 schizophrenic patients studied from 10 to 20 minutes after a generalized convulsion induced by electroshock, there was a moderate fall in cerebral oxygen consumption and a marked decrease in cerebral blood flow⁽⁶⁾. These changes in cerebral metabolism might be accounted for by the postictal cortical changes observed by Scholz⁽⁷⁾. He observed initial congestion and subsequent anemia of the cortex following convulsive seizures.

Report of a Case

(Table 1 shows the figures obtained from the cerebral metabolic studies before intensive liver therapy; after 27 days of daily intramuscular liver injections of 15 units each; 48 hours after seven electroshock treatments and liver therapy; and after six months of continued liver therapy. Chart 1 demonstrates graphically the changes in the patient's clinical condition, using the Malamud psychiatric rating scale, and the changes in cerebral metabolism⁽⁸⁾. As will be noted from Chart 1, the patient's cerebral blood flow, oxygen consumption, and glucose metabolism decreased considerably following electroshock therapy, despite the fact that the patient was remarkably improved from the clinical point of view.)

A 41 year old housewife was brought to Duke Hospital on October 25, 1949, by her husband, who stated: "Her mind is off."

Present illness: Her sex interest had been decreased for 11 months. Six months before admission she began to complain of fatigability, numbness and tingling in her feet, and difficulty in locating her legs. She was noted to be pale, had enuresis on two occasions, and was very suspicious of her husband. She was depressed for a period of three weeks some six months before admission. At that time she was given capsules containing iron and liver, and improved to some extent.

During the six months before her admission she had been somewhat depressed, especially during the last four weeks. She was constipated, had a poor appetite and had lost some weight, and her gait was very unsteady.

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Other symptoms included a diurnal mood variation, slowed talk, and loss of interest in her housework and personal appearance. For two months before admission she had been more forgetful than usual and began spending most of her time in bed. Some two weeks before admission she had received seven injections of intramuscular liver by her family doctor, although no examination of her blood had been made. She did not improve on this regimen; and three days before admission, she began to complain that some one was going to annihilate her family and herself. She also complained that people were talking about her and saying that she was going to give everyone the ringworm infection from her fingers. On the way to the hospital, she attempted to get out of the moving automobile.

Family history: No history of familial diseases including pernicious anemia and affective psychoses was obtained.

Past history

The patient had been depressed for a short while some 16 years previously. This depression followed the birth by cesarean section of her only child. She was again depressed for a period of three months some four years previously.

Her husband described her as follows: "A good, smart girl with quite a bit of pride, easy to get along with, always nervous and easy to get tired, and always willing to do anything I want to do." He stated that she rarely expressed her opinion openly.

Physical examination

The patient was a thin, wiry, graying woman who presented a strikingly disheveled picture and showed no interest in her personal appearance. She moved quite slowly, with a wide and unsteady gait. Her facial expression was constantly one of fear and depression. She never smiled and would cry frequently during the interviews.

Physical findings included pyorrhea alveolaris, onychomycosis, a Romberg sign, absent tendon reflexes at both knees and both ankles (tendon reflexes in the arms were 2 plus bilaterally), diminished to absent vibratory sense bilaterally from the crest of the ileum down both legs, complete loss of position sense in all toes, loss of sensation for pinprick over her toes with decreased pain sensation bilaterally to a point about one inch above both patellae and over her

Table 1
Cerebral Metabolic Studies Showing Result of Therapy in a Psychosis Associated with Pernicious Anemia

	Oct. 20, 1949	Nov. 23, 1949 (After 27 days of daily liver injections)	Dec. 9, 1949 (After 7 electroshock treatments)	May 6, 1950
Cerebral blood flow expressed as ml. per min. per 100 Gm. of brain tissue (normal is 65 ± 12).	49	47	32	46
Cerebral oxygen consumption expressed as ml. of oxygen per min. per 100 Gm. of brain tissue (normal is 3.8).	2.94	2.92	1.62	2.4
Cerebral glucose metabolism expressed as mg. of glucose per min. per 100 Gm. of brain tissue (normal is 6.2).	6.46	4.6	1.98	3.63

hands. She performed the heel-to-shin test well. Her tongue was pink with normal papillae, she showed no retinal hemorrhages, she had no ankle edema, and her ears were of normal configuration.

Mental status

The patient would not eat at all during the first two weeks of her hospital stay, and had to be tube-fed regularly. She voided on the floor several times. Her sleep pattern was broken, and several nights she failed to sleep at all. She consistently paused about 60 seconds before answering questions. She said that she was extremely depressed, that life was not worth living, and that she had thought of suicide on a number of occasions. Abnormalities of mental content included the delusion that she had done something wrong, that people were talking about her in the wall, and that someone was going to kill or shoot her. She thought she heard people outside the door killing her son. She was always oriented as to time, place, and person. It was impossible to complete the Wechsler-Bellvue I and Rorschach tests except for the verbal part of the Wechsler-Bellvue. Her verbal I. Q. was 107.

Laboratory data

A Wassermann test was negative. The blood count and urinary values were within normal limits. Blood chemistry studies revealed a bromide content of 51 mg. per 100 cc.; the nonprotein nitrogen was 34 mg. per

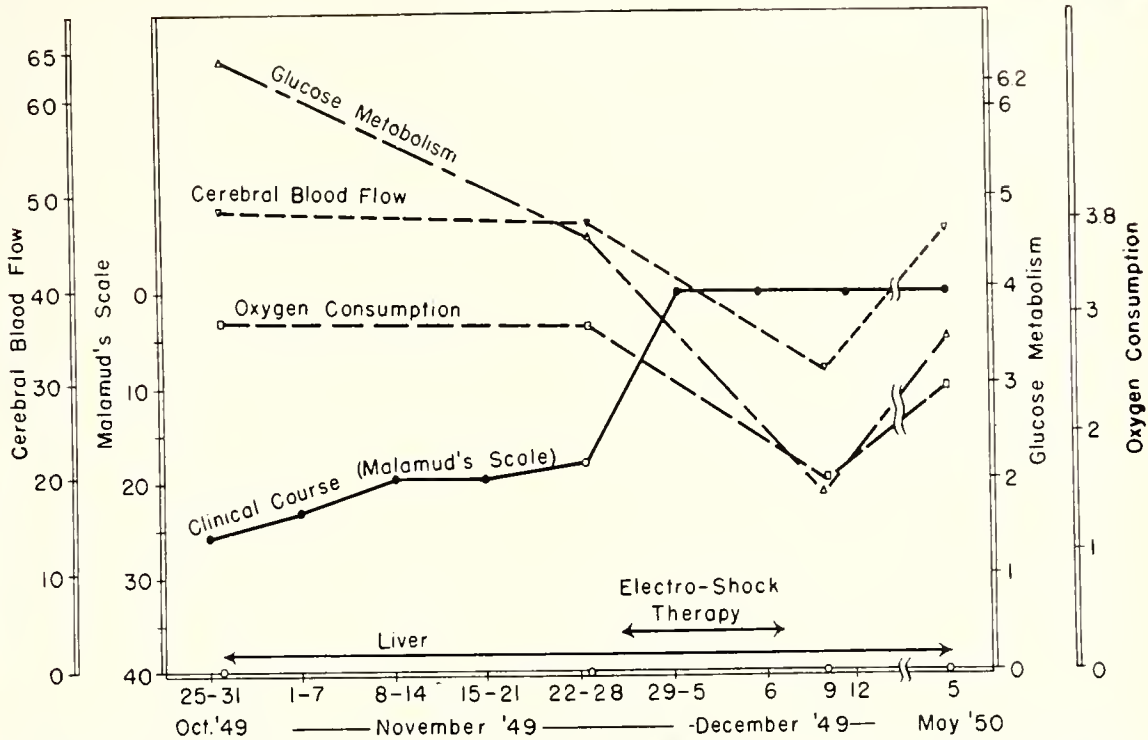


Chart 1. Changes in the patient's clinical condition (using Malamud's scale) and cerebral metabolism.

100 cc., and an indirect Van den Bergh reaction gave a bilirubin content of 0.5 mg. per 100 cc. The dynamics, protein content, cell count, and Wassermann test of the cerebrospinal fluid were all within normal limits. A gastric analysis revealed no free acid after the subcutaneous injection of 0.8 mg. of histamine phosphate. The position of the Levin tube was seen to be in the stomach by fluoroscopy. Barium studies of the stomach and small intestine revealed only some atrophy of the mucosal folds of the stomach. The electroencephalogram was within normal limits. Films of the teeth showed no root abscesses.

Course in the hospital

Cerebral metabolic studies were done by Dr. Scheinberg on the second hospital day. The findings are recorded in table 1. On the third hospital day the patient was started on daily intramuscular injections of 15 units of Lederle's Concentrated Liver Extract and was continued on this dosage throughout her 48 days in the hospital. She was continued on liver alone until the thirty-first hospital day. While on liver she still continued to void on the floor occasionally, to eat poorly, to require tube feeding occasionally, to sleep

poorly, to have the above delusions and hallucinations, and to appear quite depressed. She improved to the extent of dressing occasionally, leaving her room occasionally, and feeding herself.

The cerebral metabolic studies were repeated after 28 days of liver therapy, or on the thirty-first hospital day. At that time the findings were as recorded in table 1.

In view of the large depressive element in her psychosis, the patient was started on electroshock therapy on the thirty-first hospital day. She received one treatment daily on two consecutive days and then every other day until she had a total of seven treatments. On this treatment her spirits improved remarkably, she began eating and sleeping well, and the delusional and hallucinatory material disappeared completely. Cerebral metabolic studies were done again approximately 48 hours after the last electroshock treatment. The results are recorded in table 1.

Course since discharge

Since her discharge on December 11, 1949, the patient has been followed at monthly intervals. She has been continued on weekly intramuscular injections of 30 units of Led-

erle's Concentrated Liver Extract. Recently a dosage of 60 units of vitamin B₁₂ weekly has been substituted for the liver, with no ill effect. Since her discharge she has led a normal life, with few complaints except of fatigue of her legs around noontime and some continuation of her paresthesias. She has been keeping house and taking part in family and community activities.

Her hematologic studies have remained normal, and her neurologic picture has shown progressive improvement. She can now define sharp and dull over both lower extremities. Vibratory sense is now faintly present over both patellae and tibiae, but the right lateral malleolus is the only malleolus which is sensitive to vibration. Position sense in the toes is still poor. On testing for the Romberg sign the patient sways somewhat, but sustains her balance for one minute with her eyes closed. One of the most striking changes has been in the return of the left knee jerk. This tendon reflex is now 2 plus. The tendon reflexes of the right knee and both ankles have not returned. She walks well but is slightly unsteady on turns.

Cerebral metabolic studies were performed for the fourth time on May 2, 1950. These results are included in table 1.

Comment

It is, of course, impossible to say unequivocally that this patient's psychosis was due to pernicious anemia. The psychotic picture was compatible with published descriptions of symptomatic psychoses accompanying pernicious anemia.

As noted above, electroshock can be a useful therapeutic agent in treating some symptomatic psychoses, especially those with a prominent depressive element. This one case certainly suggests that the judicious use of electroshock therapy in psychoses accompanying pernicious anemia can produce clinical improvement despite a presumably adverse effect on the cerebral metabolism. This point is interesting in view of the fact that both electroshock therapy and bilateral prefrontal lobotomy frequently produce clinical improvement despite their lowering of cerebral oxygen consumption and cerebral blood flow, and that insulin shock therapy markedly reduces cerebral oxygen consumption. The continuation of the low figures in the cerebral metabolic studies in this patient certainly suggest that her cerebral tissue has

been damaged to the extent that a number of months of liver therapy will be required before extensive reparative processes take place.

Conclusions

1. A psychosis accompanying pernicious anemia may be terminated by the use of electroshock therapy, providing the psychosis is predominantly an affective one.

2. The decrease in cerebral blood flow and cerebral oxygen consumption which follows electrically produced convulsions can be disregarded in the treatment of psychoses accompanying pernicious anemia, providing the patient's welfare is of primary concern.

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Psychiatry and medical practice. Much of the understanding that I have attributed to psychiatry no doubt came to me not from it but from my practice in northern Vermont and from the example and tutelage of my father, a Vermont country doctor. At least it is from this combined background of practice and psychiatry that these words come. When I see the young man who has gone into psychiatry directly from his hospital internship, I often think that he has missed an essential experience from which general practitioners have achieved an understanding that surpasses his. There are, no doubt, more good psychiatrists among practitioners than they imagine. The continued application of their broad human understanding, their responsiveness to the real problems of patients—that is the practice of psychiatry.—Hyde, R. W.: *The Contributions of Psychiatry to Medical Practice*, New England J. Med. 246:611 (April 17) 1952.

Research is still and ever must be, an individual capacity and a personal absorbing enthusiasm. Work of the highest calibre, such as is important to produce, cannot be achieved by the "young man in a hurry" working merely for an easy living from nine to five and pressed by his superiors to produce two or three papers a year. The need is to select, train and encourage those most suited to the purpose.—Murray, E. G. D.: *The Emergency for Research in Unexplored Fields of Public Health*, *Canad. M.A.J.* 66:276 (March) 1952.

MANAGEMENT OF CARDIAC EDEMA

ELIAS S. FAISON, M.D.

CHARLOTTE

Edema is the term applied to an excessive accumulation of fluid in the tissue spaces. If there is a perfect balance between the inward and outward flow of fluid through the capillary membrane, edema does not occur; but if absorption is exceeded by transudation, edema is inevitable.

There are many types of edema, each representing a symptom of some primary condition. In order to manage any one of these disorders it is necessary to be familiar with the type at hand. This fact becomes strikingly evident when we pursue a therapeutic regimen directed at cardiac edema when in reality we are dealing with a case of cirrhosis of the liver. Even when the diagnosis is certain and we know that the edema under consideration is cardiac in origin, it is still necessary to know the type of cardiac lesion that is producing the condition.

Although it is not within the scope of this discussion to delve into the physiology of the production of cardiac edema, it does behoove us, in the light of present day management, to know as much as possible about the condition that is responsible for the edema.

The Physiology of Edema

Starling first pointed out that a rise in venous pressure or a fall in plasma protein would cause fluid to leave the blood stream and enter the tissue pores. For a number of decades this explanation seemed to cover all cases of dropsy.

Lewis and McKenzie were among the first to believe that when the heart muscle failed, the body, in turn, would not receive a sufficient supply of blood, and that dyspnea and fatigue were due to an insufficient supply of oxygen. In 1941 Borst, in reporting the electrolyte retention which follows gastric hemorrhage, pointed out that in all forms of dropsy, circulatory disturbances similar to those in hemorrhage, shock, or dehydration occurred. He concluded that water and salt retention were secondary to inadequate cardiac output, and that excretion of urine with a low sodium content was one of the essential proofs of failure to maintain the proper output.

Stead and his co-workers knew nothing of this observation when they learned that cardiac edema was due to a decreased volume of glomerular filtrate, and was reflexively brought about by an inadequate supply of blood to the tissues. Homer Smith had previously proved the effect of such a reflex mechanism on renal blood flow. This mechanism operates also in hypoproteinemia, and with increased desoxycorticosterone, as is shown by the reduction in the electrolyte content of the sweat and the urine. This electrolyte content returns to normal, as does the glomerular filtrate, when the blood volume is restored by injecting human albumin.

Management of Acute Failure

An excellent example of acute failure is acute pulmonary edema. It is unnecessary to explain that with the advent of more modern methods of treatment one of the old-fashioned but good remedies has been lost by the wayside — namely venesection. This procedure should not be forgotten. It is a sure, quick way of lowering venous pressure and reducing hydremia. Many patients have been saved by the prompt withdrawal of 500 to 700 cc. of blood.

One of the opiates should be given to relieve fear and apprehension when the patient is first seen. We prefer Pantopon to any of the others since it seems to cause less nausea. It may be given either intravenously or intramuscularly. The severity of the case will determine the route of administration. Oxygen, of course should always be used, if available. The tent is to be preferred to other methods of administration. Rapid digitalization should be used. After the edema has subsided, there is sufficient time to determine the cause of the acute episode and then proper precautions will be taken to prevent another such harrowing experience.

Management of Chronic Failure

Acute cardiac edema is less often encountered and its management is less difficult than is the prevention of dependent edema, or chronic failure. This requires constant vigilance on the part of the physician and his patience is frequently taxed to the point of exhaustion. A great deal of encouragement must be used, and, even with the best remedies, there will be failures. The patient will discover for himself that gravity is a great aid in relieving pressure in the right auricle in left ventricular failure and

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that the upright position should be assumed.

Digitalis is of benefit whether there is a normal rhythm or auricular fibrillation is present, and also whether the rate is fast or slow. It lowers the venous pressure, raises the blood pressure, slows the heart rate, increases the vital capacity, increases the cardiac output, encourages diuresis, relieves hepatic distention, and shortens the pulmonary circulation time. Again it is necessary to emphasize the importance of correct diagnosis, since digitalis is ineffective in edema due to some other cause—for instance, in thyrotoxicosis, pernicious anemia, acute nephritis, induced hydremia, and the like.

The method of administering the drug varies with the individual patient. It may be given slowly by using the leaf—for instance, $1\frac{1}{2}$ grains three times a day p.c. for five days, and then once daily—or rapidly by using one of the glycosides. In congestive failure, heart block does not preclude the use of digitalis.

Quinidine: In chronic failure due to auricular fibrillation, *quinidine sulphate* should be used—that is, provided that there is no conduction delay, no subacute bacterial endocarditis, and no history of pre-existing angina pectoris cured by the irregular rhythm. Although a good many of our colleagues fear the use of quinidine, we feel that they should rather fear not using it when it is needed⁽¹⁾. The dosage may vary, but a good plan is to give 0.2 Gm. (3 grains) every three hours for a day, and then increase the dose to 0.4 Gm. (6 grains), and on to 0.6 Gm. (9 grains) every three hours. Seldom is it necessary to exceed this dosage. The heart rate should have been reduced to 80 or 90 by the use of digitalis prior to beginning the quinidine. If after the administration of a high dosage the rhythm remains irregular, the quinidine should be discontinued.

Too much emphasis cannot be placed upon the liberal use of the *mercurials*. They are of especial benefit in the management of chronic edematous patients, and should be used in conjunction with the other drugs at our disposal. They act by preventing tubular reabsorption of sodium and water. They should be given intramuscularly daily, never intravenously, until the edema has been eradicated. They may then be given every other

day, twice a week, or less often. Some patients are kept quite comfortable by weekly injections, and this routine may be kept up for years.

Quite recently the *resins* have been added to our armamentarium. They act by absorbing the sodium from the intestinal tract and releasing ammonia, which, in turn, forms ammonium chloride. This within itself is a mild diuretic. A low sodium diet, however, should be followed along with the resins.

In the past few years we have become more aware of the importance of *sodium restriction* than in all the years heretofore. No matter how potent edema-producing factors are present, it is a truism that little or no salt can be formed or accumulate if it is restricted from the diet. Low sodium diets are readily available today, and the public is becoming familiar with the fact that a low sodium intake is a necessary part of the successful management of cardiac edema.

At this point a word concerning the "salt depletion syndrome" should be mentioned. The symptoms are similar to those in Addison's disease — namely, weakness, pain in the extremities, sweating, and so forth. Treatment, of course, is replacement of salt.

Finally, our attention should always be focused upon *obesity*. Each pound over the calculated normal weight adds an unnecessary burden upon an overworked and usually diseased heart. This should be explained to every patient. In our experience, the achievement of cooperation on this score is the most difficult task of all. Patients will readily take disagreeable medicaments, but will not refrain from eating to the point of complete satiation. Obesity, in my opinion, is one of the gravest concerns, from the standpoint of longevity, of our nation today; and yet nothing is done about it. During the last war, when food was scarce, there was no radio or press campaigns to encourage obese people to eat a normal diet and thus release millions of pounds of food for areas in which there was an acute shortage. Here was a chance to spare the lives of thousands of our people for weeks, months and years, and we failed to do it.

Summary

The successful management of edema is dependent upon an understanding of the

particular type at hand and of the underlying condition.

A brief presentation of the present day concept of the physiology of cardiac edema is followed by a discussion of the management of both acute and chronic heart failure, with emphasis on the avoidance or correction of obesity.

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PAROXYSMAL AURICULAR FLUTTER WITH 1:1 VENTRICULAR RESPONSE

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Paroxysmal rapid heart action is a common occurrence in medical practice. The prognosis is usually good unless the condition lasts a long time or is associated with serious organic heart disease. Even in the normal heart, when the ventricular rate remains fast for over a few hours, heart failure is likely to result. The most extreme rates are associated with such poor cardiac outflow that the patient is in a state of shock. This is particularly true in auricular flutter without auriculoventricular block, as the auricles and ventricles each contract at rates in excess of 250 a minute.

Auricular flutter is an infrequent electrocardiographic finding, but it is still more unusual to observe this rhythm without concomitant partial block of the electrical impulse. Auricular muscle has the power to contract at a higher rate than the auriculoventricular node can respond; hence the usual occurrence in flutter is 2:1, 3:1, or higher degrees of heart block.

In 1942 Cossio and Berconsky⁽¹⁾ reported one case of auricular flutter with 1:1 conduction crisis. Their review of the literature disclosed that theirs was the twentieth recorded case. Undoubtedly this rhythm occurs more frequently, as all cases are not reported, and many times it is not detected, being confused with other types of supraventricular tachycardia. Flutter must be considered when the ventricular rate is greater than the usually accepted maximum of 220 for paroxysmal auricular tachycardia, but only if the degree of block changes to 2:1 or higher will the characteristic pattern

of flutter appear in the electrocardiogram. Miller⁽²⁾ also attests to the rarity of this disorder. Of 218 cardiac patients admitted to one service of the Edinburgh Royal Infirmary, 4 had auricular flutter, and 2 had 1:1 ventricular response. Evans⁽³⁾, in 1944, reviewed the electrocardiograms of patients classified as having paroxysmal auricular tachycardia, and found that in many of them lead CR₁ disclosed P waves characteristic of 2:1 flutter. He suggested that these two arrhythmias were really one and the same, the clinical variation being accounted for by difference in rate and degree of block.

The unity of all ectopic auricular rhythms recently has been pointed out by Prinzmetal and his associates⁽⁴⁾. They contend that the difference between auricular paroxysmal tachycardia, auricular flutter, and auricular fibrillation is purely quantitative. When the impulse arises from an ectopic focus in the auricle, displacing the normal sinus node impulse, auricular tachycardia is produced at rates of 150 to 200, auricular flutter at rates of 240 to 350, and auricular fibrillation at higher rates. These figures are subject to exception, as typical flutter has been recorded at 190; and there are various types of so-called impure flutter, in which flutter and fibrillation seem to be blended together. In contrast to earlier studies of the physiologic nature of these arrhythmias, the observations of Prinzmetal and his group were made directly, using ultra-high speed motion pictures. By this method, they were able to see and record auricular contractions, which, together with direct electrocardiographic leads, enabled them to disprove the circus movement theory advocated by Lewis and afterwards universally accepted.

Report of Case

A white woman, aged 65, was first seen on October 11, 1947, complaining of nervous "spells" which she could not describe clearly. She was well nourished and not acutely ill. Blood pressure was 120 systolic, 80 diastolic; the heart was of normal size, with regular rhythm, rate 76, and no murmurs were present. She was seen again a year later, and during the interval she had had three attacks of "nervousness." Upon questioning, these appeared to be episodes of paroxysmal tachycardia. Her complaints during an attack were chiefly weakness and giddiness. Similar attacks took place in December, 1949, and February, 1950.

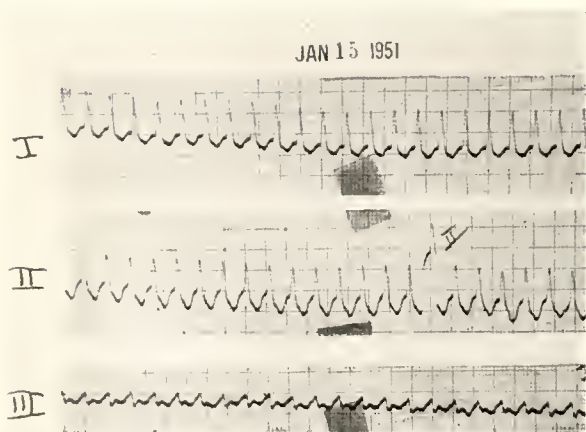


Fig. 1. First electrocardiogram, which records only supraventricular tachycardia, rate 273. The very rapid rate should lead one to suspect 1:1 flutter.

On January 15, 1951, she was seen in the midst of an attack. She was fully conscious, and complained only of weakness and breathlessness. Pulse and blood pressure could not be measured; the skin was cold, damp, and ashen gray. Heart rate at the apex was 273 a minute. An electrocardiograph was at hand and a record was made for the first time (fig. 1). Within a few minutes, before any treatment could be given, the rhythm spontaneously reverted to normal (fig. 2). Quinidine was advised for prophylactic effect, but she took it irregularly. In March, 1951, she had a paroxysm lasting six hours, and in June one lasting three hours. In October she declared that she had been free of attacks for four months, and had no symptoms. She was taking 0.2 Gm. of quinidine sulfate three times a day.

On October 30, 1951, at 10 A.M. she was brought to the hospital emergency room with another episode of tachycardia, similar to the previous attacks. She was given 10 mg. of morphine at once and 0.4 Gm. of quinidine every two hours. Six hours later the tachycardia was still present, the rate being 280. At this time 0.5 mg. of ouabain was injected intravenously; two hours later 0.5 mg. Digoxin was given orally. At 6 P.M. the pulse was irregular, with coupling and short runs of tachycardia, so another electrocardiogram was made (fig. 3). This long tracing, with the exception of the first section, was derived from lead II. The first section (lead I) showed bigeminal rhythm (fig. 3A) which was apparently superimposed on auricular

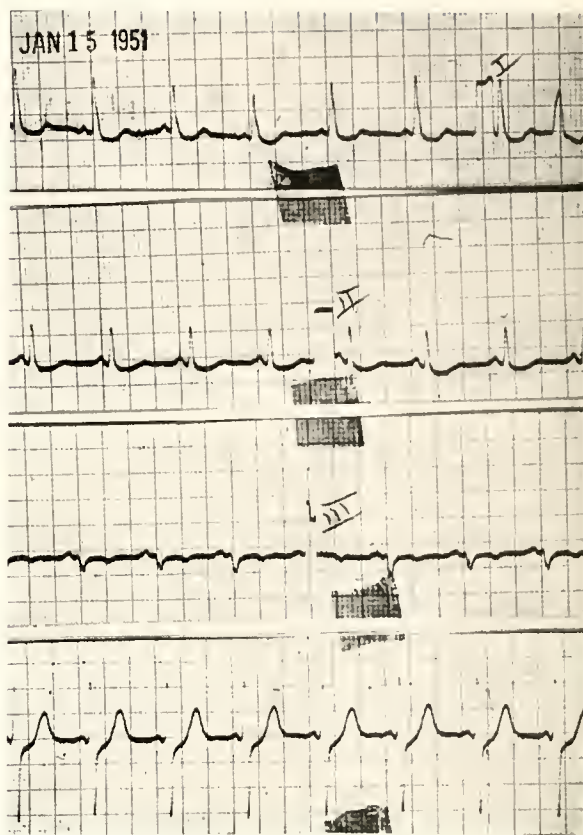


Fig. 2. Tracing made immediately after the cessation of tachycardia. The ST depression may be due to myocardial fatigue.

flutter (fig. 3B); then pure 2:1 flutter was recorded (fig. 3C) which was in turn superseded by the very rapid 1:1 flutter (fig. 3D). The last section demonstrated changing 1:1 and 2:1 ventricular response.

During this time the patient was pale, sweating, and complained of moderate substernal distress and dyspnea. Digoxin was stopped and 0.4 Gm. of quinidine was ordered again at two hour intervals. The next morning regular sinus rhythm was present and her symptoms had disappeared. A tracing made at 3 P.M. October 31, 1951, (fig. 4) was within normal limits except for prolongation of the Q-T interval, apparently an effect of quinidine. The patient left the hospital the following day feeling quite well. She was advised to take 3 or 4 tablets of quinidine (0.2 Gm. each) daily, and has had no attacks for at least three months after her discharge from the hospital.

Summary

1. A case of paroxysmal auricular flutter with 1:1 auriculoventricular conduction is

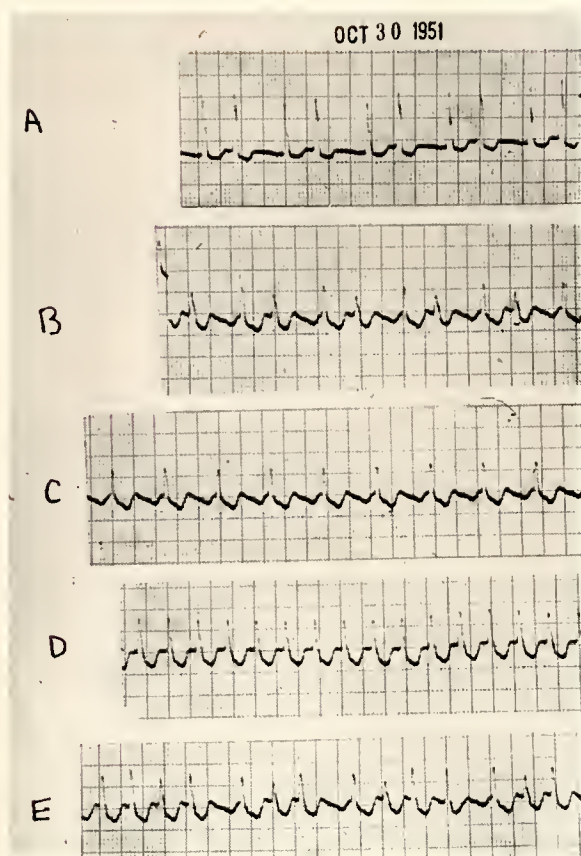


Fig. 3. A. Lead I. The ventricular complexes occur in pairs—bigeminal rhythm. Flutter waves are absent in this lead. B. Lead II. Same coupling as in A, but flutter waves are clearly defined. One R wave occurs at the summit of a P wave and the next R wave appears on the descending limb of the P wave. C. Characteristic 2:1 flutter. D. 1:1 flutter. E. Changing 1:1 and 2:1 response.

presented, occurring in a woman between the ages of 65 to 69 years, with an otherwise normal heart.

2. The differentiation between 1:1 flutter and ordinary paroxysmal auricular tachycardia can be made when a higher degree of block occurs, which was accomplished in this case by digitalis-like drugs.

3. The occurrence of this type of flutter appears to add clinical verification to the theory of unity of all ectopic auricular rhythms.

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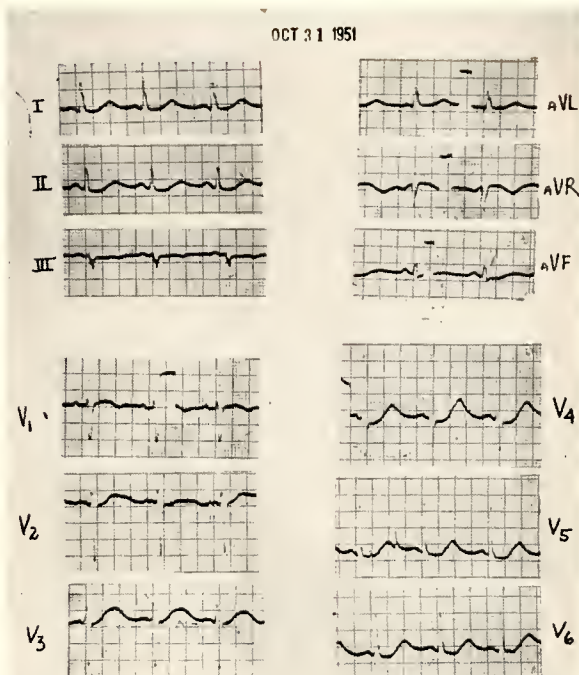


Fig. 4. Regular sinus rhythm, made 22 hours after figure 3. The prolonged Q-T interval is believed to be an effect of quinidine.

Dire effects from prolonged physical exertion are also still feared by the public, though not by the profession, which no longer accepts as valid such terms as "athlete's heart" or "strained heart." Likewise, one particular act of exertion may be blamed for a heart attack, even though it was performed hours or even days before. Mackenzie's dictum may be repeated: the heart does not remember. Physicians should know best the causes of illness, because they have studied pathology and the lay public has not. You know of the pathologist in the postmortem room who said that he was not surprised at what people died of, but he was surprised at what they could live with.—Sir John Parkinson: *The Patient and the Physician*, *Ann. Int. Med.* 35:307-308 (Aug.) 1951.

Peculiarities of patients: Formerly it was the doctors who ascribed ill-health to ill-doing or to externals; now it is the public. A physician is intent on the diagnosis, while a patient bothers about the cause and thinks it logical to do so. A particularly enjoyable meal is readily accepted as the cause of a heart attack, or it is overwork that brought it about. Though inseparable from human life, anxiety or worry is held to account by the public for heart affections of every kind; and even inside the profession there is a tendency to force this fancy. Nursing a sick relative does not injure the heart, though the nerves may not be equal to it. When war bombing stopped in Britain I did not notice the fall in the incidence of heart attacks which this misconception about causes might have led me to expect.—Sir John Parkinson: *The Patient and the Physician*, *Ann. Int. Med.* 35:307 (Aug.) 1951.

THE CELL MEMBRANE DEFECT IN ACUTE RHEUMATIC FEVER

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Acute rheumatic fever is classically characterized, early in the course of the disease, by migratory polyarthritis and other evidences of serous membrane involvement.

The histopathologic picture during the acute phase of the disease is that of primary injury to the connective tissue and its ground substance. The rheumatic lesion starts in the ground substance with edema, develops into waxy, strongly refractory masses, and eventually goes on to actual necrosis⁽¹⁾. Cellular proliferation with granuloma formation follows.

In the clinical management of the patient, the erythrocyte sedimentation rate has been the most reliable index of "rheumatic activity." However, it has not previously been possible to correlate this test with any specific physiologic defect.

The recent introduction of radiosodium as a tool in clinical investigation has provided a method for the study of generalized changes in the permeability of intact biologic membranes.

The following preliminary studies in 2 patients with acute rheumatic fever seem to indicate the presence of a cell membrane defect which correlates well with the known pathologic features of acute rheumatic fever. This physiologic defect appears to be reversible, and is suppressed by salicylates.

The radiosodium (Na^{24}) space was measured by the isotope dilution technique⁽²⁾. A three hour serum specimen was counted in order to determine the radiosodium concentration in a representative sample of the extracellular fluid after its partial equilibration with the native ion. In the normal individual, the radiosodium space, as determined by this method, is thought to represent a functional physiologic unit, although by no means the anatomic extracellular fluid space.

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The Na^{24} used was supplied by the National Laboratory, Oak Ridge, Tennessee, on allocation from the U. S. Atomic Energy Commission.

*Research Fellow of the American Heart Association sponsored by the 20-30 International Rheumatic Fever Foundation.

Table 1

Radiosodium Space and Sedimentation Rate in Acute Rheumatic Fever in a Boy, Aged 15, Treated with Salicylates

Date	Maximum Temp. (F.)	Weight (Kg.)	Radiosodium Space (ml.)	(% Body Wt.)	Sedimentation Rate (mm./hr.)
2-14	102.8	44.1	20,436	46.3	32
2-14	Acetylsalicylic acid begun (3.6 Gm. daily).				
2-21	100.0	44.5	20,364	45.8	34
2-28	100.0	44.3	14,389	32.5	26
3-8	99.6	Salicylate discontinued.			
3-14	99.6	46.4	16,971	36.6	17
3-15	99.8	Salicylate resumed (3.6 Gm. daily).			
3-21	99.4	45.9	14,987	32.7	15
3-29	Discharged on salicylates.				8
4-4	98.8	50.0	14,610	29.2	9

The sedimentation rate was measured by the Wintrobe method.

The above measurements were made serially in 2 subjects with acute rheumatic fever who were treated with salicylates. The 15 year old boy (table 1) was seen eight days after the onset of a sore throat and two days after the development of his initial attack of migratory polyarthritis. Beta hemolytic streptococci were cultured from the throat. Within 36 hours following the initiation of therapy with oral acetylsalicylic acid, the rectal temperature had decreased from 102.8 F. to less than 100 F. By the fifth day of treatment, the pain and swelling had subsided completely. The changes in the radiosodium space and sedimentation rate, however, reverted more gradually. When salicylates were discontinued on the twenty-third day, the radiosodium space and the sedimentation rate both increased again, but to a lesser degree than before. A second course of treatment after an interval of six days again produced a decrease in the radiosodium space and the sedimentation rate.

The 16 year old boy (table 2), following an initial episode of acute rheumatic fever three years ago, had been asymptomatic until three days before hospitalization, when he began to have polyarthritis. Forty-eight hours after therapy with acetylsalicylic acid was started, he was afebrile. Three weeks were required for the radiosodium space and the sedimentation rate to decrease to relatively normal values.

In studying the radiosodium space in individuals with various diseases other than rheumatic fever, we have not previously encountered a value greater than 30 per cent

Table 2
Radiosodium Space and Sedimentation Rate in
Acute Rheumatic Fever in a Boy, Aged 16,
Treated with Salicylates

Date	Maximum Temp. (F.)	Weight (Kg.)	Radiosodium Space		Sedimentation Rate
			(ml.)	(% Body Wt.)	(mm./hr.)
3-1	103.8	51.1	18,818	36.8	34
3-1 Acetylsalicylic acid begun (3.6 Gm. daily).					
3-7	99.2	50.2	21,044	41.9	41
3-14	99.0	49.8	19,319	38.8	13
3-21	99.2	52.1	17,520	33.7	9

of the body weight in the absence of gross generalized edema. Although in the 2 cases just discussed, no clinical edema was apparent at any time during the period of observation, values for the radiosodium space rose as high as 46 per cent of the body weight. These values decreased as the sedimentation rate subsided.

There are two possible explanations for the high Na²⁴ space: (1) Intracellular fluid might have migrated to the extracellular compartment during the acute phase of rheumatic fever. If this were true, we would have to assume that, in the first case, more than 6 liters of fluid shifted extracellularly. In the absence of clinical pitting edema, such an event is highly improbable. (2) It would seem more logical to interpret the data as indicating that the permeability of the affected tissue cell membranes to the sodium ion was abnormally increased. Whatever the specific injurious agent concerned in the pathogenesis of rheumatic fever might be, it produced cellular damage so that the differential permeability of the membrane was altered and the rate of exchange of sodium was increased.

The observed changes cannot be explained on the basis of an increased urinary excretion of radiosodium, since less than 1 per cent of the injected dose was excreted during the first three hours in both patients at various stages of the disease.

Although biopsies were not performed, it would be logical to suspect that the cells of the connective tissue system were primarily affected. The swollen, fragmented cells seen early in the course of the disease may be taken as objective evidence of a cellular defect.

In both cases a remarkable parallelism was observed between the sedimentation rate and the radiosodium space. The sedimentation

rate has long been recognized as an index of tissue cell destruction. Its correlation with another presumed index of generalized tissue cell alteration strengthens our confidence in its reliability for clinical use.

In the first case, the discontinuation of salicylates during the third week of therapy was followed by an increase in both the sedimentation rate and the radiosodium space—changes which subsided when salicylate therapy was resumed. This sequence of events suggests that salicylates suppress certain physiologic alterations but do not cure the disease. The effect of salicylate therapy on the histologic lesion of rheumatic fever is not known.

Acute rheumatic fever resembles serum sickness in many respects. In experimental and clinical serum sickness, changes in the plasma volume and thiocyanate space have been interpreted as indicative of an alteration in the permeability of cell membranes^(3,4). These changes were thought to be related to immunologic phenomena. Experimentally, salicylates have been shown to suppress the formation of antibody⁽⁵⁾. It would be of interest to determine whether, in clinical rheumatic fever, the above mentioned physiologic changes can be correlated with the immunologic responses.

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As the physiology of the cell becomes better known, and the relation of chemical structure to cell and tissue is revealed, chemically induced mutation or cells may become possible. Certain hormones and other drugs are now known which affect the physical being as well as the mental attitude of an individual. The future may bring to us a series of drugs that will permit deliberate molding of a person, mentally and physically. When this day arrives the problems of control of such chemicals will be of concern to all. They would present dire potentialities in the hands of an unscrupulous dictator.—Roger Adams: *Man's Synthetic Future*, Science 115:163 (Feb.) 1952.

MESENTERIC CYSTS

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Mesenteric cysts lie between the leaves of the mesentery of the large or small bowel, and are more common in that of the small intestine. True mesenteric cysts are to be distinguished from cysts arising from reduplications or diverticuli of the intestine, both of the latter having muscular and serous coats common to the intestinal tract. The literature on mesenteric cysts is sparse. Just over 400 cases have been reported, and we could find no definite information as to their incidence. Textbooks on pathology either omit the subject or simply mention that they do occur. Most papers are based on only 1, 2, or 3 cases, and many of these, undoubtedly, were not true mesenteric cysts. Ladd and Gross⁽¹⁾ were able to report only 8 such cysts from the Children's Hospital in Boston up to 1941. Since mesenteric cysts are congenital in origin, most of them are found in children. The youngest reported patient was 7 weeks old, the oldest a young adult, with the vast majority of cases occurring in children less than 6 years of age.

Pathology

Microscopically, these cysts are found to be extremely thin-walled. They are made up of connective tissue, and may or may not have a demonstrable inner layer of flattened glandular cells. There are neither serous nor muscular layers⁽²⁾. The contents may be serous or chylous, depending on the location of the cyst⁽³⁾. Those occurring in the jejunal mesentery contain chylous fluid, presumably due to the absorption of fat in this portion of the intestine. They vary greatly in size, the largest one reported filling the abdominal cavity and embarrassing respiration.

Etiology

There is considerable disagreement as to the origin of these cysts, probably due to the failure to distinguish between true mesenteric cysts and those of intestinal, infectious, or parasitic origin. The best explanation of their presence is that they arise

from congenital rests of misplaced lymphatic trunk tissue which continued to proliferate and secrete, just as do inclusion cysts elsewhere in the body⁽⁴⁾. One other widely held theory is that they are the result of inflammatory obstruction of normally placed lymph channels, but the extreme youth of many of these patients would seem to discount the validity of that explanation.

Diagnosis

The diagnosis should not be difficult, but it is rarely made preoperatively, probably because of the rarity of the condition. In uncomplicated cases, symptoms are caused only by the size of the cyst, and the complaint is simply that of a painless, slowly enlarging abdomen, sometimes of two or more years' duration. When the cyst is so situated as to encroach on the bowel, symptoms of partial or, more rarely, complete intestinal obstruction may be encountered. A discreet mass may not be palpable, since the fluid in these cysts is seldom under pressure. If it is felt, it is usually to the right of the mid-line and freely movable, more so from side to side than up and down. In larger cysts a fluid wave can often be demonstrated. Flat films of the abdomen may show displacement of the bowel, usually upward and to the left. Films made after the ingestion or injection of barium may show the intestine coursing around the tumor mass⁽⁵⁾. Pneumoperitoneography may demonstrate the mass completely.

Complications other than intestinal obstruction are those due to rupture, infection, or hemorrhage into the cyst. These are usually encountered in older patients, and most frequently are diagnosed only at operation.

Treatment

The only treatment is surgical, and the procedure of choice is enucleation and complete removal. Two or three cases of apparent cure by simple aspiration are reported in the literature. In an uncomplicated unilocular cyst, the mesenteric vessels are all displaced to one side, the other side of the cyst being covered only by one leaf of the mesentery. In such a case it is not too difficult to incise the avascular mesenteric leaf and peel out the cyst *in toto* by blunt dissection, being careful not to damage the blood supply to the contiguous intestine. The resulting rent in the mesentery is then closed with a running suture which tends to

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act as a purse-string and take up the redundant mesentery. However, it is often not possible to strip the cyst from the blood vessels without damaging them, in which case the adherent bits of cyst wall may be left attached to the vessels and carefully cauterized with phenol.

Some authors have reported successful treatment of multilocular adherent cysts by marsupialization only, but this procedure should be used only as a last resort. In rare cases, the cyst cannot be removed without damaging the blood supply to the contiguous intestine, in which case resection and anastomosis are done without hesitation.

Report of a Case

A white baby boy, the youngest of three children, was born July 2, 1951, spontaneously at home, on a farm in southeastern North Carolina. The family history is non-contributory.

On July 9 his mother noticed that his abdomen was quite distended and realized that it had been so since birth. Several enemas failed to afford relief. She consulted her local physician, who told her that the child had been getting too much to eat and advised her to cut down on his rations. This program, accompanied by further enemas, was followed without beneficial results. On July 17 the child was admitted to the hospital, and we both saw him that same day.

Examination revealed a white male infant, 2 weeks of age, weighing 7 pounds and 8 ounces. The abdomen was extremely distended, and the veins over the upper abdomen and lower thorax were markedly dilated and engorged. When the child cried or exerted, he became extremely cyanotic. No masses could be palpated in the abdomen, but a definite fluid wave was demonstrable. Routine laboratory studies and icteric index were within normal limits. It was felt at this point that the child had cirrhosis with portal obstruction and ascites. Flat film (fig. 1) showed the entire abdomen to be distended and filled with an opaque mass which crowded the intestinal tract into the upper left quadrant and greatly restricted the capacity of the thorax.

On July 17 a paracentesis was done morning and evening, removing 100 and 150 cc. of fluid respectively. This fluid was pale yellow in color, did not foam, had a specific gravity of 1.001, 32 white blood cells per



Figure 1.

cubic millimeter, and a protein content of 5 mg. per 100 cc. Culture was later reported positive for *Aerobacter aerogenes* and negative for tuberculosis. It was still thought that the fluid was ascitic in character. The next day 300 cc. of fluid was removed by abdominal paracentesis and 100 cc. of air injected for peritoneography. Roentgenograms were made with the child in various positions, with the results shown in figure 2. The diagnosis was now obviously a mesenteric cyst on the right, presumably in the mesentery of the ascending colon.

On July 20 a laparotomy was carried out under open drop ether anesthesia. The abdomen was entered through a right paramedian incision, which was later extended from the symphysis pubis almost to the costal margin. A thin-walled cystic mass which filled the incision and prevented observation or palpation of any other structures was encountered; it was too large to be delivered through

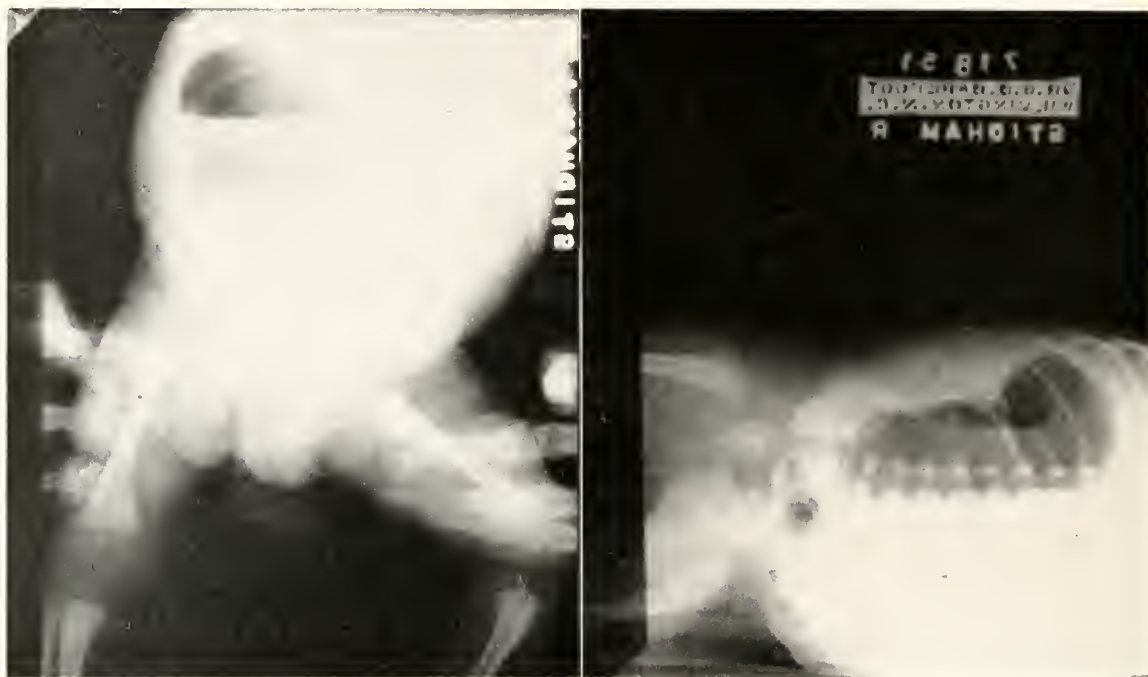


Figure 2.

the incision. A large bubble of air could be seen lying on the top of the fluid contents of the cyst. This air was released with a hypodermic needle, and as the cyst partially collapsed, the appendix and cecum came into view from the left upper quadrant. The cyst was now delivered onto the abdominal wall. The ascending colon and about 3 inches of terminal ileum were found to be coursing across and adhering to its upper left anterior surface. The presenting avascular side of the mesentery was incised and the cystic mass shelled out without too much difficulty. The blood supply of the cyst consisted of vessels equal in size to those of the right colon, and arose from these vessels. The vascular bundle constricted the cyst in its mid-portion sufficiently to give the bilocular appearance noticed in the roentgenogram. The rent in the mesentery of the terminal ileum and right colon, measuring some 15 cc. in length, was closed with a running suture of plain catgut. The intestinal tract now fell into its normal position, and what at first had been thought to be a malrotation was shown to be simply displacement upward and to the left. The abdomen was closed in layers, and convalescence was uneventful. The child was discharged on August 2, thirteen days after the operation.

His weight on admission had been 7 pounds, 8 ounces, which dropped to 6 pounds the day after the operation, and returned to 6 pounds, 7 ounces, on discharge. Whereas preoperatively feedings had been taken reluctantly and in small quantities, now that the intra-abdominal tension had been relieved, feedings were taken avidly and in normal quantity.

The cyst measured in its partially collapsed condition (650 cc. of fluid had been removed preoperatively) 12 by 9 by 7 cm. The lower end was rounded where it encroached on the floor of the pelvis, and the upper end tapered up alongside the liver under the diaphragm. The microscopic report was "cubical and columnar glandular epithelium resting upon well organized connective tissue—serous mesenteric cyst." Although the cyst occupied the mesentery of the terminal ileum as well as the ascending colon, it must have arisen in the lower portion of the ascending colon, since it was there that it derived its blood supply.

Comment

As far as we can determine, this is the youngest reported patient to be operated on for mesenteric cyst, and one of the few cases in which an exact diagnosis was made preoperatively. The cyst was one of the

largest removed from any patient. It is interesting to note that although congenital defects were absent in other members of the family, this child also presented a urachus that was patent almost to the umbilicus, a branchial cleft cyst, and a pilonidal cyst.

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HEMANGIOMA OF THE LIVER

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Hemangiomas of the liver are not uncommon⁽¹⁾. They are usually small and asymptomatic, being an incidental finding at autopsy or laparotomy. Large hemangiomas of the liver are rare, there having been only 73 cases previously reported^(2,3,4). The majority of the cases have been treated surgically, but a few have been treated with irradiation when operation was deemed unsafe. The case being reported was successfully treated surgically.

Case Report

A 56 year old white multiparous housewife, was admitted to the hospital October 9, 1948, stating that "My womb falls out." Her history indicated that since the menopause five years before, she had noted increasing protrusion of the uterus from the vagina, accompanied by moderate urinary frequency and stinging. Bedrest always relieved the prolapse. A secondary complaint was of a "lump in my stomach." Approximately 12 years before she had noted a non-tender mass, "about the size of a walnut" (3 cm.), in the right upper quadrant of the abdomen, just below the costal margin. She consulted her physician, who said that it was



Fig. 1. Roentgenogram following partial evacuation of barium enema. Outline of the mass is indicated by arrows. Note hepatic flexure of colon lies well below crest of ilium.

of no importance. The mass slowly increased in size, but remained asymptomatic except for an occasional "heavy feeling" just below the ribs.

Examination revealed a well developed, well nourished, middle aged white female, who did not appear ill. Blood pressure was 170 systolic, 100 diastolic. The only abnormalities noted were: (1) A firm, non-tender, nodular mass that occupied the entire right upper two-thirds of the abdomen. The mass descended with each inspiration, and could be displaced medially a few centimeters. It was silent to auscultation. (2) The uterus, which was 4 cm. in diameter, could be easily pulled down into the vagina until the entire cervix protruded.

Accessory clinical findings: The urinalysis and hemogram were negative. The nonprotein nitrogen was 33 mg. per 100 cc., total serum protein 6.5 Gm. per 100 cc., and the Kahn test was negative. A scout film of the abdomen revealed a large mass in the right upper quadrant. Barium enema showed the hepatic flexure of the colon to be depressed by the mass (fig. 1). Intravenous pyelography was negative.

Course in hospital: It was explained to the patient that an exploratory operation should be performed to determine the nature

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of the abdominal mass. She agreed, but preferred to have the prolapse attended to first. Consequently, a vaginal hysterectomy was performed. Convalescence was uneventful, and the patient was discharged, to be readmitted in two months. During this interval she remained asymptomatic, and examination on re-admission showed no change in her condition.

On December 30, 1948, under spinal anesthesia, the abdomen was opened through a right subcostal incision. A large tumor—bluish-red to bluish-gray in color, and with many small cystic areas—presented in the incision. The mass arose from the right lobe of the liver by a long broad pedicle. Transfixion sutures of no. 2 chromic catgut were inserted into the liver substance just proximal to the attachment of the pedicle. The tumor was amputated, and the sutures tied snugly. A few mattress sutures were used to approximate the cut edges of the liver. Bleeding was minimal, it being estimated that only 400 cc. of blood was lost during the procedure. This amount was amply replaced by a transfusion of 500 cc., given during the operation. The abdomen was closed in layers, with a rubber tissue drain leading down to the cut edge of the liver. The postoperative course was benign, with ambulation beginning on the third postoperative day. Drainage was scanty; both drain and skin sutures were removed on the sixth postoperative day, and the patient was discharged on the tenth day. She has remained in excellent health, and examination recently showed no abnormality.

Pathology report: This is a large globoid-shaped mass, measuring approximately 14 by 16 by 6 cm., and weighing 807 Gm. It is mottled in color, varying from grayish tan to a dark red, which is suggestive of a very vascular tumor. Some areas on the surface are cystic to touch, while others are quite firm. The tumor cuts easily, to reveal a dark reddish-brown surface from which exudes a large amount of blood. Multiple sections reveal the same appearance. Microscopic sections show numerous large dilated vascular spaces filled with red blood cells. In some areas the vessels are separate; in other areas they are confluent. In all areas the cells are clear and distinct in outline, and well differentiated (fig. 2). Diagnosis: Hemangioma; no evidence of malignancy.

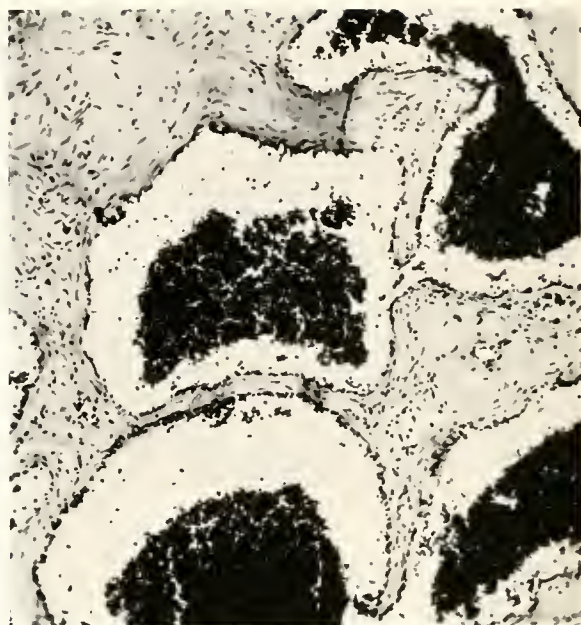


Fig. 2. Photomicrograph of section of hemangioma, showing the confluent vascular channels containing blood. (H & E, 95x)

Comment

The correct diagnosis of hemangioma of the liver is difficult to make preoperatively. The only suggestive finding is a bruit, and it is more often lacking than present. Shumacker⁽²⁾ was able to find only 2 cases in which the diagnosis was made prior to operation. Treatment of large hemangiomas is always fraught with the danger of exsanguinating hemorrhage. The use of hemostatic mattress sutures inserted before excision of the tumor is the preferable method of control, but may not succeed, because of the extreme friability of the liver. In such cases, fulguration or packing or both may become necessary for control of the bleeding. The presence of a pedicle between the liver and the tumor simplifies excision.

Summary

Successful excision of a large hemangioma of the liver is reported. It is believed that this is the seventy-fourth reported case of such a tumor.

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LOEFFLER'S SYNDROME

Two Case Reports with High White Cell Counts, Pulmonary Changes, and Ascaris Infestation

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and

M. L. WILLIAMS, M.D.

CONCORD

Little factual knowledge has been added to Loeffler's original descriptions in 1932⁽¹⁾ and 1936⁽²⁾ of the syndrome which bears his name. The syndrome is still ill defined, though many similar conditions—or possibly variants of the syndrome—have been described in the literature and are listed in table 1. All these conditions are associated with leukocytosis, pronounced and persistent eosinophilia of the blood, usually pulmonary changes, and, in a fewer number of cases, with dissiminated visceral lesions, the latter condition having been most clearly described by Perlingiero and Gyorgy⁽³⁾ in 1947 and by Zuelzer and Apt⁽⁴⁾ in 1949.

Table 1

Loeffler's Syndrome and Similar Conditions
as Reported in the Literature

Diagnosis	Author	Earliest Date Reported
Eosinophilic leukemia	Stillman ⁽⁵⁾ Shapiro ⁽⁶⁾	1912 1919
Eosinophilia with splenomegaly	Harrison ⁽⁷⁾	1930
Fleeting pulmonary infiltration with eosinophilia (Loeffler's syndrome)	Loeffler ^(1,2)	1932 1936
Familial eosinophilia	Stewart ⁽⁸⁾	1933
Extreme eosinophilia and leukocytosis	Bass ⁽¹⁰⁾	1941
Eosinophilic lung	Hodes, Wood ⁽¹¹⁾	1945
Pulmonary ascariasis: a possible cause of asthma	Soysa, Jayawardena ⁽¹²⁾	1945
Eosinophilia leukemoides	Schmidt-Weyland ⁽¹³⁾	1925
Chronic eosinophilia	Perlingiero, Gyorgy ⁽³⁾	1947
Disseminated visceral lesions associated with extreme eosinophilia	Zuelzer, Apt ⁽⁴⁾	1949

The following 2 case reports are believed by the authors to be warranted because of certain interesting features, chief of which is the astoundingly high white count found initially in Case 1.

*Reports of Cases**Case 1*

A 2½ year old white female was admitted to the Cabarrus Memorial Hospital on August 27, 1951, with a five day history of fever, dry cough, malaise, and anorexia. Expiratory wheezing was noted two days before admission. *Past history* disclosed the following facts: (1) the patient had been breast-fed for the first eight months, then bottle-fed until the present illness. Pasteurized whole milk was used until a few months prior to the onset of the present illness when raw milk from an untested cow was given. Solid foods were not begun until the patient was 4 months old, and were always taken poorly. Accessory vitamins were completely inadequate. (2) Development had been normal except that the child spoke only in monosyllables. (3) She had been "sickly and puny" all her life, and had eaten dirt at every opportunity since she was old enough to "crawl around and get it." (4) One year prior to hospital admission she was treated for ascariis, and numerous large parasites were passed. (5) Three months prior to the present hospital admission she had had an attack of "asthma" lasting about one week.

Family history: (1) The father and mother complained of feeling "lazy" all the time. Stool examinations revealed ova of hookworm and ascariis. Complete blood counts were within normal limits except for eosinophil counts of between 3 and 5 per cent. (2) The case of the 3½ year old male sibling is reported subsequently. The other brother, aged 14 months, despite a history of pica, was found to have a normal blood count and a negative stool examination. (3) The maternal grandfather and maternal great-grandmother of the patients had bronchial asthma.

Physical examination on admission showed a moderately well nourished, well developed female child with a rectal temperature of 99.8 F. The skin was pale, but no jaundice was manifested clinically. The lungs showed asthmatic wheezes throughout, with coarse rales at both bases. The liver edge was felt at the right costal margin; the spleen was not felt. Adenopathy was limited to one or two small, shotty nodes in the cervical and inguinal regions.

Accessory clinical findings: The hematologic findings are listed in table 2. A stool

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Table 2
Hematologic Findings
(Case 1)

Date	Red Blood Cells (millions)	White Blood Cells	Hemoglobin (Gm.)	Differential					
				Seg. PMN	Nonseg. PMN	Lymph.	Mono.	Eosin.	Baso.
8-27-51	3.9	325,000	9.9	7	0	19	1	72.5	.5
8-29-51		67,000							
8-30-51		52,000		6	2	6	0	86	0
9-1-51		73,000		6	1	12	0	81	0
9-2-51		60,000		5	1	23	1	68	0
9-3-51		24,950		10	0	43	1	45	1
9-4-51		19,000		4	1	34	0	60	0
1-19-52	4.30	9,000	10.7	37	1	40.5	4.5	17	0

Description of Smear

2 polychromatic normoblasts
1 basophilic normoblast
Slight anisocytosis and poikilocytosis
Eosinophils appear mature.

Rare hypersegmented polymorphonuclear neutrophil.
Eosinophils appear mature.
Platelets adequate.

RBC's microcytic, hypochromic, with slight anisocytosis and poikilocytosis.

examination was positive for ascaris and pinworm ova. The tuberculin skin test (O.T. 1:1,000) was negative, as were the Brucella agglutination, Trichinella skin test, serologic test, and routine urinalysis. The total serum protein on September 4 was 7.6 per cent, with an albumin-globulin ratio of 4.8:2.8.

Course in Hospital: Chest film on admission showed spotty bilateral confluent consolidations medialward. A follow-up film three days later was unchanged. The rectal temperature showed an afternoon rise to 100 or 101 F. Symptomatic measures were used, and hexylresorcinol was administered for ascaris. No parasites were passed. The child showed gradual clinical improvement and was discharged on the tenth hospital day, to be followed as an office patient.

Follow-up: The patient was clinically without complaint on January 19, 1952, five months after the initial visit. The liver and spleen were not palpable, and no adenopathy was present. Because of the blood count, Elixir Rubraton was given. It is significant that in the five month interval there had been two "asthmatic" attacks lasting a few days each, the latter being more severe but responding to penicillin and adrenalin in oil.

Case 2

A 3½ year old white male, brother of the patient in Case 1, began, on September 12, 1951, to have malaise, cough, anorexia, and fever. Five days later, on September 17, expiratory wheezing was noted, and since the sister (Case 1) was already hospitalized for

a similar illness, this patient was also admitted to the Cabarrus Memorial Hospital. No vomiting, diarrhea, jaundice, or weight loss had been noted. This child's *past history* was not significant, except that he had also been a "dirt eater," and had passed large round worms prior to the onset of the present illness.

Physical examination on admission showed a 3½ year old boy in acute respiratory distress, similar in every respect to his sister on her hospital admission. The child's rectal temperature was 101 F. Other pertinent findings were a mild pharyngitis and asthmatic wheezes throughout the lungs, with coarse rales at both bases. The remainder of the examination was negative.

Accessory clinical findings: Hematologic findings in Case 2 are listed in table 3. Other admission laboratory studies showed a positive stool examination for ascaris ova. Tuberculin skin test (O.T. 1:1,000) was negative; the Trichinella skin test and routine urinalysis were also negative. Serologic test, Brucella agglutination, total serum proteins, and the albumin-globulin ratio were not determined.

Course in Hospital: Admission chest film showed accentuation of both hilar shadows, particularly the left; otherwise the parenchyma was clear. The heart and great vessels were undisturbed. The child was treated symptomatically, and showed marked improvement. Hospital discharge was allowed on the fourth hospital day, when he had been afebrile for 24 hours. Hexylresorcinol treat-

Table 3
Hematologic Findings
(Case 2)

Date	Red Blood Cells (millions)	White Blood Cells	Differential							Description of Smear
			Hemoglobin (Gm.)	Seg. PMN	Neut. PMN	Lymph.	Mono.	Eosin.	Baso.	
9-18-51		32,000		36	2	20	2	39	0	Slight anisocytosis and poikilocytosis, with microcytosis and hypochromia. Platelets adequate. Eosinophils appear mature.
9-20-51	4.04	10,400	10.3	15	2	34	1	48		
1-19-52	3.80	6,000	10.7	30.5	1	59.5	3	5	1	As above.

ment was to be given at home, and office visits for follow-up were to be made.

Follow-up: The patient had been without complaint during the five month interval, and on January 19, 1952, there was no adenopathy, or palpable liver or spleen. The blood findings are listed in table 3.

Comment

Case 1 is of great interest in that the initial white count was 325,000 per cubic millimeter. The highest white cell count that we have found reported in any of the 10 conditions listed earlier in this paper was 265,000 per cubic millimeter in a case of so-called eosinophilic leukemia⁽¹⁵⁾.

In reviewing these cases in an attempt to arrive at a proper diagnosis, it becomes evident that the significant findings include a severe eosinophilia of peripheral blood and bone marrow, pulmonary changes, a septic type of fever, an allergic background, and infestation with ascaris.

We believe that for practical purposes the 10 conditions listed previously can be narrowed to two—namely:

1. *True leukemia*, in which characteristic leukemia findings on physical examination predominate, and which, though showing an eosinophilic leukocytosis early in the course of the disease, later shows myeloblastic leukocytosis.

2. *Loeffler's syndrome*, interpreted as showing at some time during its course pulmonary changes, leukocytosis, and eosinophilia. The etiology may be varied, but is believed to be some extraneous cause, as ascaris infestation, pollinosis, or other condition, superimposed on an allergic background⁽³⁾. It is possible that even the syndrome described by Perlingiero and Gyorgy⁽³⁾ in 1947, and Zuelzer and Apt⁽⁴⁾ in 1949, is but an elaboration or variant of Loeffler's

original description^(1,2). Ascaris has been found to be the causative agent in many cases of Loeffler's syndrome⁽¹⁶⁾, and Lavier⁽¹⁷⁾ reported Loeffler's syndrome with hepatitis, there being liver fluke infestation in this case.

So-called familial eosinophilia may also represent another variation, in that members of certain families with allergic tendencies may react in a given manner to infection or to extraneous agents.

Since all ascaris infestation is accompanied by a certain degree of pulmonary change and eosinophilia, notably when the larvae are invading the body, and especially in the individual with an allergic background, pulmonary ascariasis easily gives rise to the picture described. Essentially, all pulmonary ascariasis produces, in varying intensity, the syndrome described by Loeffler, but not all cases of Loeffler's syndrome are due to ascariasis, as other parasites or pollen, as previously mentioned, may act etiologically.

Though it will be considered controversial by some, we would also classify the "eosinophilic lung" as being a variant of Loeffler's syndrome, the etiology possibly differing in that a pleuropneumonia-like organism is responsible in the former condition.

In the 2 case reports under discussion, there was no available evidence of liver involvement as described by Perlingiero and Gyorgy⁽³⁾, and by Zuelzer and Apt⁽⁴⁾, and the spleen was not palpable. Also, at the time these children were seen there was no lymph node big enough for biopsy, thus making Hodgkin's disease unlikely as a cause for the eosinophilia. Except for the initial white count in Case 1, moreover, there was little to indicate leukemia. In regard to this last

statement, it is of interest that the eosinophils seen, both in marrow smears and peripheral blood smears, were mature in appearance, being of normal size, with distinct nuclear lobulation, and well filled with normal-appearing granules.

These cases are reported as examples of Loeffler's syndrome, with ascaris infestation as the etiologic agent. It is believed that the symptoms encountered were in large part due to an allergic response to the ascaris toxin.

Follow-up findings on these two patients five months after their initial visit are of great interest. The hematologic findings on the two children are listed in tables 2 and 3.

Summary and Conclusion

Two cases of Loeffler's syndrome in children are presented, with ascaris infestation superimposed on an allergic background as the likely etiologic agent. One patient had an initial white count of 325,000 per cubic millimeter.

It is hoped that this paper will stimulate interest in the syndrome of leukocytosis and eosinophilia, with or without roentgenologic evidence of pulmonary change, and that the syndrome can be more clearly delineated, both clinically and descriptively.

The authors wish to express their appreciation to Dr. Lucile Hutaff of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina, for her review of marrow and peripheral blood slides in Case 1.

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APLASTIC ANEMIA DUE TO GOLD - THERAPY UNSUCCESSFULLY TREATED WITH BAL

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PINK HILL

It is the object of this report to call attention to a case of aplastic anemia due to gold therapy which showed no response to large amounts of BAL.

Hematologic manifestations of toxicity in gold therapy are relatively rare. Aplastic anemia is the rarest and most serious of these manifestations.

Fitzpatrick and Schwartz⁽¹⁾ reviewed the literature in 1948 and found 18 cases of aplastic anemia due to gold therapy. To these they added 2 cases, bringing the total to 20. One of these cases was treated with BAL. In 1949 Indyk⁽²⁾ reported a case of aplastic anemia due to gold, the second reported case of BAL used to treat aplastic anemia due to gold therapy.

Case Report

A white man, 47, was admitted on December 27, 1947, complaining of bleeding from the gums and nasal mucosa for two months. Eight years prior to admission he began to have rheumatoid arthritis, manifested by pain and swelling in the left knee. Later pain and swelling developed in a migratory fashion in the jaws, hips, shoulders, elbows, and fingers. He was completely incapacitated for eight years because of the arthritis. In March of 1947 he was started on gold therapy by his physician. He received 50 mg. of gold intramuscularly each week until 1000 mg. had been given. Leukocyte counts were done each week, and he showed no toxic manifestations. He obtained almost complete relief of the symptoms of arthritis.

Two months prior to admission to this hospital, and one month after the completion

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of the treatment, he noticed a slight rash on his face and legs. He noticed oozing of blood from the gums and the nasal mucosa on the slightest provocation. The hemogram at that time showed a profound decrease in all cellular elements. He was admitted to a civilian hospital and was treated with BAL, transfusions, crude liver injections, and penicillin. Two weeks after discharge from the civilian hospital he was admitted to this hospital. The rash had increased in severity and covered his entire body. The gums and nasal mucosa continued to ooze blood.

Physical examination

On admission, the physical examination showed a well developed, pale, white man who appeared chronically ill. The nares were filled with old dried, clotted blood. The right knee was swollen and tender, and its motion was limited. A diffuse dermatitis was present on the extensor surface of both upper and lower extremities. This was purpuric in character and violaceous in color. The areas were confluent. The surface was crusty and scaly. The same type of rash was present over the back and the buttocks. There was no limitation of motion of the back or the phalanges.

Accessory clinical findings

The erythrocyte count was 3,500,000 per cubic millimeter, with a hemoglobin of 8.8 Gm. per 100 cc. The leukocyte count was 2,700 per cubic millimeter, with 20 per cent neutrophils, 74 per cent lymphocytes, and 6 per cent monocytes. The icteric index was 20.5 units. The prothrombin time was 29 seconds, with a control of 16 seconds. The nonprotein nitrogen was 36. A roentgenogram of the lower leg revealed a slight, soft, tissue swelling of the right leg. Bone marrow smear revealed the absence of proerythroblasts, erythroblasts, and normoblasts. A rare megakaryocyte was present. Myeloblasts and myelocytes were not seen. Rare juvenile cells and stab forms were present. The few sparse mature myeloid cells present showed toxic granules. There was no apparent reduction in lymphoid and reticulo-endothelial elements. The bone marrow smear showed aplasia of the bone marrow.

Course in hospital

The patient received 39 transfusions of 500 cc. of whole blood, at a rate of about two transfusions per week. Over the five month period after admission to this hospital, he

received 173 cc. of 10 per cent BAL, the total dosage being 17.3 Gm. The injections were given intramuscularly.

The hemorrhages from the nose and the gums became more frequent, and he had a number of areas of muscle soreness apparently due to hemorrhages. The erythrocyte count dropped from 3,610,000 to 1,370,000 in spite of numerous transfusions. The leukocyte count dropped from 4,000 to 1,000. The neutrophils were never higher than 17 per cent. After five months in the hospital with persistent skin rash, muscle soreness, and frequent hemorrhages, he acquired a severe frontal headache. The headache became so severe that it required Demerol for relief. He complained of more severe frontal headache, and the tenderness of the thighs and forearms became more pronounced. Ocular hemorrhages and edema of the eyes developed. The respirations became slow and stertorous, and the patient became comatose. His temperature continued to rise, and on May 21, 1948, reached a height of 105 F., rectally. The respirations became more shallow, and he died on May 22, 1948.

Autopsy findings

A postmortem examination was done. Fresh clotted blood exuded from both nares. Fresh hemorrhages covered the entire conjunctiva of the left eye. Dried blood was present about the gum margins. Numerous showers of petechial hemorrhages were present in the antecubital fossae, on the forearms, and over the anterior aspect of both legs. The ankles were moderately edematous. The entire parietal pleura showed showers of petechiae and frank hemorrhages up to 2 cm. in diameter. The lower lobe of the left lung was atelectatic. This lobe was deep purple in contrast to the remainder of the lung, which was the usual salmon color with anthracotic mottling.

The inner aspect of the parietal pericardium showed numerous hemorrhagic foci. Over the visceral pericardium and extending into the subepicardial fat and myocardium were numerous oval, splinter shaped, and linear blackish-blue hemorrhages. Numerous subendocardial hemorrhages were present.

The entire mesentery was studded with blackish hemorrhagic areas, varying from 1 to 3 cm. in diameter. The stomach was distended by coffee ground mucoid material, and shining through the serosa could be

seen hemorrhagic foci which "peppered" the mucosa of the stomach. There were similar isolated hemorrhagic phenomena throughout the small and large bowel and the retroperitoneal reflexions.

The presence of numerous capsular and subcapsular hemorrhages over the dome of the liver, especially in approximation to the diaphragm, made it impossible to separate the muscles of the diaphragm from the liver, even by sharp dissection. The central zones were bright red and stood out in contrast to the mottled peripheral zones, which presented a grayish-yellow appearance.

The spleen was densely adherent to the surrounding structures. Enlarged follicles could be made out here and there; however, for the most part the architecture was obscured and the trabeculae were not made out.

Both kidneys were enlarged. They were soft and grayish-red in color. The capsules were moderately adherent, leaving throughout a slightly granular surface which was studded with numerous bright red circular and linear hemorrhages. On cut surface the cortex showed bright red areas interspersed on a gray background. There were hemorrhages in both calyces and pelves, and in the left kidney was a semi-fluid, organized clot which occupied the interstices of the calyces, pelvis, and the proximal one-third of the ureter.

The bladder wall was "peppered" with bluish-black hemorrhages throughout.

The sternum, ribs, and upper portions of the femur revealed a relatively dry marrow, the fluid portions of which were muddy in appearance.

The splenic pulp was engorged with red cells, which crowded out the other elements. There was marked reticulo-endothelial hyperplasia in the central portion of the follicles. It is possible that the islands of small cells with very dark nuclei seen in the splenic pulp were islands of extra-medullary hematopoiesis.

Severe degenerative changes were seen within practically all of the renal tubules, but especially those of the distal convoluted tubules. The cells were swollen and granular, and appeared to be breaking down. In some cases the lumen was completely occluded, and in other cases there was a greater or lesser deposition of granular debris within the lumen of the tubules. The glomeruli themselves appeared well preserved, although

there were some amorphous granular material and many red cells within the capsular space. The interstitial tissue was edematous and infiltrated with round cells and polynuclears and occasional plasma cells. There were many areas of interstitial hemorrhage. Hemorrhagic extravasation could be seen outside of the tubules, and many of the distal tubules contained intact red cells and granular, pink-staining debris.

The lymphoid sinuses were distended with blood, and there were many areas of hemorrhagic extravasation within the substance of the lymph node, whose architecture appeared to be obliterated.

The bladder lining was intact, although thin. There were many areas of hemorrhagic extravasation in the lamina propria which extended into the muscle bundles, sometimes to a depth including the entire bladder wall.

The marrow consisted mainly of fat. There were few cells present; those that were seen appeared to be lymphocytes. There were also many areas of hemorrhagic extravasation in the bone marrow.

Comment

Good results have been reported from the use of BAL (British anti-lewisite, 2, 3-dimercaptopropanol) in the treatment of dermatitis, thrombocytopenia, and granulocytopenia due to gold toxicity^(2,4). Fitzpatrick⁽¹⁾ reported a case of aplastic anemia due to gold which was treated with BAL. The patient lived for only six days after BAL was started. Fitzpatrick stated that the failure here did not imply condemnation of BAL. Indyk⁽²⁾ reported 1 case of aplastic anemia due to gold treated with BAL. This patient had a temporary increase of polymorphonuclear leukocytes from 8 to 56 per cent. BAL was credited with stimulating the granulocyte series. Quantitative urine gold determinations were done, and BAL was attributed with causing an increased urinary gold output.

The patient in the present case was treated for five months with BAL. He received 17.3 Gm. of BAL during the five months while at the hospital, in addition to the BAL that he received at the civilian hospital. This dosage of 17.3 Gm. of BAL is the largest amount of BAL reported used in the therapy of aplastic anemia due to gold therapy.

Summary

A case of aplastic anemia due to gold

therapy is presented, bringing the total number of reported cases to 22. This is the third reported case of aplastic anemia due to gold therapy being treated with BAL. A large dose of BAL was used over a five month period of time, and there was no response to therapy.

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WHY PEDIATRIC ANESTHESIA IS DIFFERENT

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During the past 10 or 15 years greater advancement has been made in pediatric anesthesia than in any other branch of surgical anesthesia. The following factors make pediatric anesthesia different from anesthesia in adults: the anatomy and physiology of the child; the psychic trauma that may result from terrifying experiences in the operating room; the frequent unpredictable effects of analgesics and hypnotics; the alarming susceptibility of infants and children to anoxia and asphyxia; the bad effect of increased dead space and resistance to respiration caused by improper equipment. Children also possess a narrow margin of safety between good surgical anesthesia and respiratory and cardiac arrest. Violations of the fundamentals of good anesthesia quickly produce a far graver condition in the infant than in the adult. It should be stressed here that anesthetic agents and techniques cannot be too carefully selected.

In the past few years the scope of pediatric anesthesia has greatly broadened. Many operations are performed around the head and neck. For these, the anesthetist must be removed from the usual position at the head of the table to the side in order to make room for the surgeon and his assistant.

Intrathoracic operations upon infants and children are becoming more and more frequent, requiring methods by which one can not only administer positive pressure but also assist, or even control, respiration at times. Therefore, the old familiar open drop method must be replaced in many cases by newer techniques, which can be safely used if the fundamentals of good anesthesia are observed. The equipment brought into service must be different from that used in adult anesthesia. The anesthetist must at all times be careful in detail, gentle in procedure, and skillful in technique.

Premedication

Premedication in infants and children has been a controversial subject for many years. There have been as many varied opinions in regard to this matter as there have been writers. Some have insisted that infants should have no premedication at all, while others have declared that no conscious child, except in an emergency, should ever see the operating room or be submitted to the terrors associated with the induction of an inhalation anesthesia. The aforementioned emotional trauma has long been recognized by both psychiatrists and pediatricians. Such symptoms as increased fear, night terrors, dependency reactions, temper tantrums, and the like, have followed anesthesia in surgical procedures. Leigh and Belton⁽¹⁾ believe that the benefits of pre-anesthetic sedation outweigh their disadvantages, and hence recommend the use of an opiate along with a barbiturate, even in infants. Other anesthesiologists use the barbiturates alone in dealing with infants, and a combination of opiates and barbiturates in older children.

The latter procedure is used in the Department of Anesthesiology at the North Carolina Baptist Hospital. Moreover, Demerol is preferred to morphine because of the lessened occurrence of postoperative nausea and vomiting. Scopolamine is used in preference to atropine, because the former is superior to atropine in its effect upon the secretions of the respiratory tract and, in addition, affords a psychic sedation, which atropine does not. Avertin was once popular as a basal anesthetic at the Baptist Hospital, but, because of its long depressant effect and its potential toxicity, it has been supplanted to a great extent by the barbiturates. Sodium Pentothal or Surital, administered rectally, has been the preference recently.

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No age or weight chart is used, but many physiologic, pathologic, and other factors are taken into consideration. The psychologic technique advocated by Jackson⁽²⁾ has great value. Often it alone is sufficient. However, psychic therapy will not work with the emotionally unstable and apprehensive child, or with one who has had a former terrorizing experience with an anesthetic. With the latter, it is better to use a hypnotic, a narcotic, or a combination of both.

Induction

For induction, at the North Carolina Baptist Hospital, nitrous oxide or Vinethene is generally used. With both of these agents induction is smooth, rapid, and not too disagreeable for the young child.

Dangers to be Avoided

If you stand by the crib of a small child and note its respirations during quiet, normal sleep or deep anesthesia, one will be impressed by the small exchange of air or mixture of gases that occurs with each breath. One is also aware of the frailty of the muscles carrying on this process. Tidal exchange in an infant under an anesthetic is only a few cubic centimeters. Therefore, certain techniques and procedures must be used in pediatric anesthesia that are entirely different from those followed when dealing with adults. In order to adapt the technique to the special needs of children, the following dangers must be guarded against.

Obstruction of airway

The slightest obstruction of the airway must at all times be prevented. Anoxia is the commonest cause of death in anesthetized children. Even a minor obstruction will lessen the small tidal exchange of the infant and thereby produce anoxia and labored breathing. If upper respiratory obstruction occurs during anesthesia and cannot be immediately corrected, then an endotracheal tube should be inserted without delay. Anoxia is a far graver risk to the patient than any problem associated with intubation. If the tube is inserted gently and with skill, no irritation of the larynx or trachea should be produced. At the North Carolina Baptist Hospital, no serious complications have resulted from the use of endotracheal tubes in children. Only a few children have been affected with hoarseness following intubation.

Accumulation of carbon dioxide

Another advantage of this procedure is that it obliterates not only the anatomic dead space of the mouth and pharynx, but also the mechanical dead space of the face mask. In pediatric anesthesia it is important to eliminate as much dead space as possible, thus decreasing the accumulation of carbon dioxide, for the two go hand in hand. As previously stated, the tidal exchange in an infant under an anesthetic is very small indeed, and premedication in children adds to the problem. Even the smallest mask for anesthesia will double the dead space unless a high flow of oxygen is maintained to wash away the expired carbon dioxide. Respiratory acidosis from faulty elimination of carbon dioxide should be prevented by a reduction in dead space. Even the open drop technique, the oldest and probably the most common method of anesthesia for children, does not eliminate this problem. Therefore, the smallest possible mask should be used. It is our custom to employ a mask similar to the original Ferguson mask. Even then it is advisable to lift the mask off the face frequently for a few breaths in order to lessen the accumulation of carbon dioxide. A better method is to admit oxygen under the mask by means of a mouth hook or a nasopharyngeal tube at the rate of 1 or 2 liters per minute. If this procedure is not carried out, respiratory acidosis may result, seriously affecting the physiology of the child, which may be more disturbed and altered by the anesthesia than by the surgery itself. The physiologic balance must be maintained, because this factor is far more important in the infant or child than in the adult, since only small deviations from the normal can be withstood by the child for any length of time.

Mechanical resistance to respiration

Another detail in pediatric anesthesia to be carried out is to prevent as far as possible any resistance to respiration. Until recently all anesthesia equipment was constructed for adults. Such equipment should not be used for children. Gas machines for adult use, with their long tubes, directional valves, and large soda-lime canisters provide a resistance far too great for the small child to breathe against. Therefore, the circle type of filter should never be used. The to-and-fro filter, with its small canisters, can be used to better advantage because there is less resistance to

breathing than with the circle type. There is also less dead space with the to-and-fro type of filter.

Sound Technique

The most physiologically sound technique for the administration of gaseous mixtures is embodied in either the Ayre⁽³⁾ tube, or the Stephen-Slater⁽⁴⁾ non-resisting, non-rebreathing valve apparatus, both of which function with practically no resistance to either inspiration or expiration. They also prevent the accumulation of carbon dioxide by removing exhaled gases from the circuit completely. Both are used with an endotracheal tube. The Ayre non-rebreathing tube is inserted in the anesthesia feed line close to the angle piece of the endotracheal tube. It is a very simple apparatus consisting only of a T tube. On inhalation the patient breathes in gases from the anesthesia feed line and also some air from the open arm of the T tube. On exhalation the exhaled gases pass out of the open arm, thus minimizing resistance to respiration with efficient carbon dioxide elimination. The one disadvantage to this equipment is that there is no reservoir bag in the system, therefore making it impossible to carry out properly managed, assisted, or controlled respiration when the necessity arises. This problem is solved entirely by the non-rebreathing, non-resistant valve apparatus perfected by Stephen and Slater⁽⁴⁾. This contrivance is placed in close proximity to the endotracheal tube and connected by means of a small reservoir bag to the source of gases and vapors. On inspiration the gases are obtained from the reservoir bag; during expiration the delicate nonresistant valve to the bag is closed and the gases escape into the atmosphere of the operating room. If assisted or controlled respiration is desired, it can be carried out without difficulty by the prescribed technique of Stephen and Slater⁽⁵⁾, which is as follows:

"On inspiration the thumb of one hand is pressed over the exhalation valve while the bag is being compressed with the other hand. On expiration the thumb is removed from the exhalation valve and the hand relaxed completely in order that the bag can refill from the gas machine."

This procedure can be carried on for hours if necessary, and allows safe anesthesia for even the smallest infant. The thin rubber valves of the Stephen and Slater apparatus are so constructed that resistance to both inhalation and exhalation is practically nil.

Since dead space is almost entirely eliminated, there can be no accumulation of carbon dioxide. With this method one can anesthetize small infants for periods of two to three hours without any evidence of fatigue. Of the various techniques in pediatric anesthesia that have been employed at the North Carolina Baptist Hospital, that of Stephen and Slater has proved most satisfactory.

Other Considerations

Fluid therapy is far more important in the child than in the adult. The younger the infant, the less able he is to withstand fluid imbalance. Fluid therapy is used to maintain either a proper electrolyte balance or an adequate volume and content of circulatory blood. As the result of starvation or infection, children quickly develop metabolic acidosis. No anesthesia or surgery should be performed upon them until this condition has been corrected, whenever possible, with rectal or intravenous fluids. This preoperative treatment enables the infant to meet better the damaging effects of the anesthesia and operation.

It must also be remembered that infants withstand poorly the loss of small amounts of blood. The loss of 1 cc. of blood in an infant is equivalent to the loss of 20 cc. in the adult. The loss of 25 cc. of blood in the child is equivalent to the loss of 500 cc., or 1 pint, in the adult. Therefore, whenever an operation is to be performed upon an infant and any appreciable blood loss is anticipated, a cut down on a vein should be made preoperatively in order to take care of any blood loss as soon as it occurs. The amount of blood transfused should keep pace with estimated blood loss. If these simple precautions are taken with children, operative and postoperative shock is rarely encountered.

Summary

Pediatric anesthesia differs in several respects from anesthesia in the adult. Equipment and techniques must be carefully adapted to the special needs of children.

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RELAPSING FEBRILE NODULAR NONSUPPURATIVE PANNICULITIS (Weber-Christian Disease)

Case Report

M. A. SPYKER, M.D.

D. M. ROSS, M.D.

and

G. W. LAWSON, M.D.

BURLINGTON

This clinical entity was first described by Pfeifer in 1892. In 1937 Bailey⁽¹⁾ reported the first death in which the entity was prominent and autopsy was refused. No autopsies on patients with this disease were reported until 1943, when Miller and Kritzler⁽²⁾ reported their case. To date, about 44 cases, including three autopsies, have been reported.

The disease is characterized by a relapsing febrile course; associated with it are subcutaneous nodules, most often seen on the extremities, particularly the legs. It is several times more common in females than in males. The youngest person having this disease was 23 months old, reported by Larkin and colleagues⁽³⁾.

The pathologic picture is one of acute or chronic inflammation in the interstitial tissue between fat cells, and capillary vascular damage. The adipose tissue shows various degrees of degeneration, necrosis, and regeneration. The end stage shows replacement fibrosis, which accounts for the dimpling grossly seen as defects in the subcutaneous tissues.

Various etiologic theories have been advanced, but no one accepted. Infection and allergy are most frequently given as causes.

The treatment as reported has been of little or no avail in altering the course of the disease. Included was 1 patient who was treated with penicillin and had complete remission several months later. Streptomycin used in one case did not change the progression of the disease.

Case Report

A 66 year old white man entered the hospital complaining of rheumatism of ten years' duration. About one month prior to admission he had rheumatic pain. Three weeks before admission he had a cold and

cough that got worse, and four days prior to admission he noticed a rash marked by red, swollen, tender areas as big as the hand, most prominent on the right leg but also present on the other leg and arms.

Physical examination on admission revealed a temperature of 102.6 F., pulse 112, respiration 22, and blood pressure 120 systolic, 80 diastolic. The general physical examination revealed a chronically ill man with slight edema of the subcutaneous tissues, and multiple skin lesions. The head was generally normal. The mouth was edentulous. Percussion and auscultation of the heart were negative. Examination of the lungs revealed fine, moist rales in both bases. Palpation of the abdomen was generally normal. The genitalia were normal. The rectal examination revealed hemorrhoids and a small prostate. The extremities were generally normal in size and shape. The neurologic examination was normal. Examination of the skin revealed multiple raised, flat, tender lesions, measuring 1 to 10 cm., over the legs and arms. These lesions were all slightly indurated. The centers were not necrotic. The largest ones were on the right lower leg.

The laboratory examinations while in the hospital were as follows: On February 11, 1952, the red blood cell count revealed 4,120,000 cells with 12.3 Gm. of hemoglobin. The white blood cell count was 16,600. The differential showed 79 per cent neutrophils, 18 per cent lymphocytes, and 3 per cent monocytes. On February 21 the white blood cell count was 11,200, with 64 per cent neutrophils and 36 per cent lymphocytes. A urinalysis done on February 11 revealed a pH of 5.5, specific gravity 1.024, a trace of albumin, and no sugar; and microscopic studies revealed 3 to 6 white blood cells per high power field, with an occasional hyalin and finely granular cast. A repeat examination showed essentially the same findings, but an increase in white blood cells to 8 to 12 per high power field, with an increase in casts (mostly hyalin) from 3 to 6 per high power field. On February 18 a microscopic examination of the urine showed an occasional white blood cell and no casts. On February 24 microscopic examination of the urine showed an occasional white blood cell and no casts. The serologic analysis was negative. On February 15 the Fishberg concentration test showed: first specimen, 250 cc., specific gravity 1.021; second specimen,

From Alamance County Hospital, Burlington, North Carolina.

30 cc., specific gravity 1.020; third specimen, 70 cc., specific gravity 1.022. A phenolsulfonphthalein test was done. The half hour specimen of 50 cc. showed a 33 per cent return of phenolsulfonphthalein. The one hour specimen of 50 cc. showed 60 per cent return of phenolsulfonphthalein, and the two hour specimen of 70 cc. of urine had a return of 6 per cent phenolsulfonphthalein. Blood chemistry studies done in the hospital on February 15 showed a blood non-protein nitrogen of 36 mg. per 100 cc., and a urea nitrogen of 18.5 mg. per 100 cc. A blood culture on February 18 showed no growth. The histopathologic examination of a skin lesion showed degeneration and regeneration of fat with inflammatory cells, mostly lymphocytes.

Roentgen examination of the chest on February 11 and an electrocardiogram on February 21 were normal.

The patient remained in the hospital for 14 days, and left the hospital slightly improved. The skin lesions were relatively unchanged. His temperature fluctuated throughout his hospital course, as did his pulse. He received generally nonspecific therapy without antibiotics.

Summary

This case is reported to add to the relatively few cases in the literature.

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This is a transitional period, and the spheres of influence of the three provinces of medicine (Science, Art and Business) show some signs in the future of being dominated by the last. What this would mean to medicine at Pennsylvania remains to be seen, but it is quite certain that our school could never have achieved its present standing with the resources available to it, without a spirit of unselfish cooperation and mutual esteem that seems incompatible with a coldly efficient business administration. — Carl F. Schmidt, M.D., Professor of Pharmacology, University of Pennsylvania, on "Medical Research," *Pennsylvania Gazette*, March, 1952.

EARLY NORTH CAROLINA MEDICINE

Physicians of the Colonial Period

Part I

DOROTHY LONG*

LEXINGTON, KENTUCKY

While in many cases we know little more than the names of the physicians of colonial North Carolina, concerning a few of them some information survives, though it often pertains to activities outside their profession rather than within it, and we remain largely ignorant of their professional practices and accomplishments. Dr. John King was apparently one of the few doctors to practice in North Carolina during the seventeenth century, the courthouse records of Edenton containing an itemized bill from him to Arter Workman, dated July 26, 1694⁽¹⁾. A few years later, about 1702, Dr. Godfrey Spruill located at Edenton, and the Colonial Records of the state⁽²⁾ yield a little information about him. The first volume of the Records contains an entry, dated 1703, from the vestry book of St. Paul's church, directing the employment of Dr. Spruill to treat Elinor Adams, who was indigent. Dr. Spruill was to be paid by the church for the medicine and for the care of the sick person, but Captain Thomas Blount was instructed "to endeavor to oblige the Said Elinor to Serve the Doctor for the Use of his House and nursing."⁽³⁾ Another church record of 1714 was also preserved, directing that Dr. Spruill be paid the sum of twelve pounds for the cure of Ebenezer Aldridge⁽⁴⁾.

Two other physicians are frequently mentioned in the Colonial Records, though more often in connection with politics than with medicine. Indeed, in whatever ways the early doctors of our state may have been deficient, they were certainly interested and active citizens. Dr. George Allen, for example, was active politically, though during the first years of his residence in North Carolina he was in constant trouble with the authorities, and in none too good repute with at least some of the other citizens of Edenton. A letter written in 1725 by Thomas Bailey, a minister, protesting the action of Governor Richard Everard in refusing him the key to

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the church and forbidding him to preach, mentions that he found Everard in company with Dr. Allen, "a man of vile character and lately condemned at Williamsburgh for cursing King George and Mr. Drysdale who is governor of Virginia."⁽⁵⁾ Later, Dr. Allen was again indicted for cursing the king, according to the records of the general court, and before this case was settled, he got into still more trouble, this time with Governor Everard, who was probably at least as much at fault as the fiery physician. The Records do not give the full story, but we do learn from them that Dr. Allen, armed with two pistols and a sword, had at one time confronted the governor and threatened to kill him, and that in April, 1727, Everard had called Dr. Allen from his home and struck him several times with his cane. Allen was indicted for assaulting the governor, and appeared in court in October, 1727, wishing to give evidence to the grand jury against Everard. Being refused, he turned to the people in the courtroom, complaining of this treatment and saying that he could not get common justice. Ordered to be taken into custody, Dr. Allen fled to his home and threatened to shoot the provost marshal who came after him. However, when the case finally came to trial in the following year, he acknowledged himself guilty of "affronting and abusing the court, and was discharged of the indictment."⁽⁶⁾

Whatever their opinion of his quarrel with Governor Everard may have been, some of the provincial officials were more sympathetic toward Dr. Allen's difficulties with the next royal governor, Burrington. In 1732 a formal complaint by the attorney general and two members of the council mentioned among other injustices that Governor Burrington had assumed power to commit any person to jail for 12 hours without showing cause, and that he had confined Dr. Allen in prison for 10 hours in this illegal manner⁽⁷⁾.

It may be that Dr. Allen learned to control his impetuous temper, or perhaps others were beginning to share his independent spirit. At any rate, by the year 1735 he was a member of the general assembly, representing Chowan county. He served on several committees of the assembly, and was one of the members who frequently delivered messages to the upper house. He is also

known to have served with Captain John Sampson's company of militia during the Spanish alarms of 1748. The one available record relating to his medical activities is his testimony in an investigation of the death, in 1728, of Colonel William Reed, a member of the council, and that merely states that a messenger, who had been two days on the way, came to tell Dr. Allen that Reed was dangerously ill, and that when the physician arrived at the home of his patient, Mrs. Reed told him that her husband had died the preceding day and had been buried⁽⁸⁾.

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Professional Freedom: Mill wrote that "there is a limit to the legitimate interference of collective opinion with individual independence"; and also this: "But where everything is done through the bureaucracy, nothing to which the bureaucracy is really adverse can be done at all." There is little doubt that very many doctors, especially in general practice, do feel that the collective opinion which brought in the National Health Service has thus interfered too far with individual independence. And when we witness the weed-like growth of the bureaucracy we cannot help but wonder how long it will be before the sweet flower of liberty will have the life choked out of it. It is not without significance that in reaction to the N.H.S. a voluntary association of medical men and women has chosen the title of Fellowship for Freedom in Medicine to signify its aims . . . Doctors of all people want to see the evils of poverty, ignorance, and fear overcome, for these are prolific breeders of ill-health and unhappiness. But when we see the Welfare State turning itself into a wet-nurse for all and sundry to suck itself dry we may well ask whether a people forced into such infantile dependency will ever grow up with a sense of adult responsibility. Bernard Shaw, Dr. Fox reminds us, hit the nail on the head when he said: "Liberty means responsibility. That is why most men dread it."—Editorial, *Brit. M.J.* 2:457 (Aug. 25) 1951.

How afraid we are nowadays of being sentimental, that is, of showing sentiment or feeling. The fear of it can be carried too far—it is a matter for each to decide—but we cannot allow the public or our patients to believe that as a profession we are unfeeling. Laymen incline to imagine that a medical training produces an indifference to suffering, a hardness of heart, but nothing is farther from the truth. Of all people, a medical man must not wear his heart on his sleeve, but in the presence of sickness he may prove to be the only practical sympathizer about. For that is a privilege of his calling; he is literally in his element.—Sir John Parkinson: *The Patient and the Physician*, *Ann. Int. Med.* 35: 310 (Aug.) 1951.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

JULY, 1952

DR. OLIN WEST

Dr. Olin West, who was secretary and general manager of the American Medical Association from 1924 until coronary heart disease forced him to retire in 1946, died at his home in Nashville, Tennessee, on June 20—three weeks before his seventy-eighth birthday. The service that Olin West has rendered to medicine in America is so great that it is hard to evaluate. Those who knew him instinctively liked and trusted him. Even those who did not agree with him never questioned his intellectual honesty. He had the gift of friendship as did few men. His rugged honesty, his clarity of vision, and his genial personality made him a born leader. His talents of leadership were always exercised for what he believed to be the best interests of the whole medical profession.

Even after he resigned as secretary and general manager, he was chosen unanimously as president-elect of the A.M.A. in July, 1946; but resigned early in 1947, since it was impossible for him to meet the physical demands that the position entailed.

The fact that his paternal grandfather was a native of Robeson County adds to the pride and affection felt by North Carolina doctors for Olin West. On their behalf the NORTH CAROLINA MEDICAL JOURNAL extends heartfelt sympathy to the surviving members of his family, and agree with the *Journal of the American Medical Association* that "His record of service to mankind is an enviable one, and may in part serve as a source of consolation to the bereaved members of his family."

* * *

YOUR MONEY'S WORTH IN HEALTH

One of the best pieces of literature yet issued by the Public Relations Department of the American Medical Association is entitled "Your Money's Worth in Health." It shows graphically that the public is getting more for the money spent on medical bills than ever before; that the cost of medical care has not risen in proportion to the cost of bread, milk, fuel, and other living expenses; and that medical care still takes only four cents out of every dollar of the average family's income—the same proportion as 20 years ago. Furthermore, owing to new remedies and better techniques, the total doctor's bill is less today than it was 15 years ago.

This pamphlet shows that, even with the increased costs of hospital care, the average hospital bill was less in 1951 than in 1935, because the average stay in the hospital in 1935 was 21 days, in 1951, 8 days. Many of the new drugs are quite expensive; but through improved production methods—and competition—they are steadily becoming cheaper. The cost of the most useful of the antibiotics, penicillin, for example, was reduced by 99 per cent between 1945 and 1951.

This pamphlet, together with the one issued last year, "A Doctor for You," should prove to be very effective reading material for doctors to keep on their reception room tables.

* * *

A BRITISH SECRET CANCER CURE

An editorial in the *British Medical Journal* for June 7 points out one danger of medical practice under government control. *Picture Post*—which is apparently a sensational popular magazine—in September, 1950, had an article about a cancer remedy which had been handed down from a Welsh father to his son, Mr. Rees Evans. Instead of ignoring or denouncing the *Picture Post* story, Mr. Aneurin Bevan, who was then Minister of Health, set up a special committee in order that the Rees Evans "cancer cure" should be "fully and fairly investigated." As the *British Medical Journal*, with characteristic British understatement, observed, "This seemed to many to be rather an unusual compliment to pay the purveyor of a herbal secret remedy, especially when there existed in the Imperial Cancer Research Fund a well tried machinery for investigating cancer cures."

The report of the committee was completed some time ago, and—since the investigation was paid for out of public funds—it was reasonable to expect that it would be published. "It was peculiarly disappointing to hear the new Minister of Health, Mr. Iain MacLeod, say: 'The report has now been received, and in the normal way I should have proposed to publish it; but as it contains information supplied to the committee in confidence by Mr. Rees Evans and by patients and their relatives I cannot do so.'"

Mr. MacLeod told the House of Commons "that the committee has advised him that the claims made do not warrant further investigation and that he has accepted that advice." Apparently, however, Mr. Rees Evans expects to continue to use his remedy, saying, "I know that the opinion of this committee will not prevent others giving my treatment a real and thorough investigation." To which the *British Medical Journal* replies, "No one should be allowed to keep secret the constituents of a preparation he believes will cure, even partially, one of the most dread diseases of modern times."

It is a sad commentary on the British National Health Scheme that its first Minister of Health should have given so much consideration to a secret cancer remedy, and that the present one apparently pays Mr. Rees Evans the compliment of feeling bound to keep his remedy in professional confidence. It has not been long, however, since

a United States senator from one of the New England states stoutly defended an irregular Massachusetts practitioner and attacked the Massachusetts Medical Society for disciplining him⁽¹⁾. The senator even used the Congressional Record to give the doctor a free advertisement. Evidently politicians on both sides of the water are equally incompetent to control the practice of medicine.

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* * *

"OUTMODED MEDICAL ETHICS"

Under the above title, Editor Peter Pineo Chase, in the *Rhode Island Medical Journal* for March, comments upon a recent book by a Chicago architect written to condemn the medical profession for refusing to accept a "new" treatment for arthritis, which "was not sanctioned by the medical profession because it did not have the 'authority' of publication in a recognized medical magazine." The architect-author claims that he was cured by this remedy, hence his interest in "the problem of outmoded ethics."

To North Carolina doctors the idea of an architect having the temerity to speak of ethics is ridiculous, for they have not had time to forget the type of ethical conduct displayed by the architects who were not given the contract for planning the new Wake Forest College in Winston-Salem. Although Mr. Larsen had been employed to do the job, and although the Building Committee of Wake Forest were well satisfied with his proposed plans, he was criticised and even abused in the press and in various speeches by those architects who were not consulted in the matter.

To a medical man it seems that an exact analogy would be for the doctors who were not employed to treat some prominent patient to publish articles and make speeches all over the state—and even over the nation—denouncing the methods used by the attending physician.

One may be pardoned for wondering what—if any—Principles of Ethics the architectural profession follows. In North Carolina, at least, if architects ever had any ethics, they were apparently outmoded—or abandoned—after the Wake Forest plans were announced.

Committees and Organizations

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

The present Board of Medical Examiners of the State of North Carolina during its short term of office has experienced so much difficulty in narcotic violations that it thought it would be helpful to the physicians of our state to have an article prepared by the United States Commissioner of Narcotics to bring pertinent facts to their attention in regard to the handling of narcotics. It is the pleasure of the board to present the following article.

* * *

THE ROLE OF THE PHYSICIAN IN FEDERAL NARCOTIC LAW ENFORCEMENT

H. J. ANSLINGER*

The drugs covered by the Federal narcotic laws are those included within the classification "opium, coca leaves, and any compound, manufacture, salt, derivative, or preparation thereof," and any other drug officially found and proclaimed to have addiction liability comparable to that of morphine or cocaine. Thus the laws apply not only to all forms of opium and the well known alkaloids and salts obtainable from opium and coca leaves, such as morphine, codeine and cocaine, but also to certain synthetic analgesic drugs, such as Demerol, methadone (Dolophine or Adanon), Nisentil and Dromoran. The barbiturates are not included under the narcotic laws of the United States.

Provisions of Federal Statutes

The two principal Federal narcotic statutes are the Narcotic Drugs Import and Export Act, as amended, and the so-called Harrison Narcotic Law, now incorporated in the Internal Revenue Code. The Narcotic Drugs Import and Export Act authorizes the importation of such quantities only of opium and coca leaves as the Commissioner of Narcotics shall find to be necessary to provide for medical and scientific needs. Importation of any form of narcotic drugs, except such limited quantities of crude opium and coca leaves, is prohibited. Exportation of manufactured drugs and preparations is

permitted under a rigid system of control designed to assure their use for medical and scientific needs only in the country of destination.

The Harrison Narcotic Law as re-enacted in the Internal Revenue Code is designed to direct the manufacture and distribution of narcotic drugs through medical channels to consumption use for medical purposes only. This statute and the regulations promulgated thereunder more directly affect the practicing physician.

In order to prescribe, administer, or dispense narcotic drugs in the course of professional practice, the physician is required to register in Class IV under the Harrison Narcotic Law with the Collector of Internal Revenue on or before July 1 of each fiscal year, and to pay an occupational tax of \$1.00. As qualification for such registration, he must be entitled under the laws of the state in which he practices to prescribe, administer, or dispense narcotics to patients in the course of his professional practice. This usually means that the physician shall hold an unrevoked and unrestricted license to practice medicine in the particular state.

After being registered, the physician may supply a narcotic drug for the medical need of a patient by issuing a prescription (written for the particular patient) which is filled at a registered drug store, or the physician may directly administer or dispense the narcotic drug to the patient. It should be noted that a narcotic prescription may not be used by the physician as an order form to obtain a supply of narcotics from a pharmacist for the physician's general office use. To obtain a supply of narcotic drugs for direct administration or dispensing, the physician must use an official order form which is obtainable from the Collector of Internal Revenue. Registered manufacturers or wholesale dealers are eligible to fill such order forms. One exception is made; a person qualified only as a retail dealer (druggist in Class III) may supply a registered practitioner on an order form, in quantities not exceeding one ounce at any one time, with aqueous or oleaginous solution in which the narcotic content does not exceed a greater proportion than 20 per cent of the complete solution, to be used in legitimate office practice.

Of special importance to the physician is that limitation in the Harrison Law that all prescribing, administering and dispensing of narcotic drugs shall be "in the course of

*United States Commissioner of Narcotics and Representative of the United States on the Commission on Narcotic Drugs of the United Nations.

his professional practice only." The United States Supreme Court has made it clear that the prescribing or dispensing of narcotic drugs by a physician, for the purpose merely of gratifying or perpetuating drug addiction, does not constitute "professional practice," and that the physician who prescribes or dispenses narcotics for such purpose is violating the law.

Irregularities by Physicians

It is a tribute to the medical profession to state that the great majority of its members have observed and have continued to observe this limitation and do not prescribe or dispense narcotic drugs for the purpose of gratifying drug addiction. However, a few physicians have disregarded the Court's ruling and the high standards of the profession by causing the sale to addicts of substantial quantities of morphine or other narcotics for the sake of financial gain. An example of such a case is that of a physician, himself an addict, who was practicing in an eastern city, and who during a period of nine months issued 6,340 alleged prescriptions for addicts, calling for a total of 177,049 tablets of morphine, Pantopon and Dilaudid.

This instance illustrates the more flagrant type of cases, fortunately comparatively few in number, in which there must be prosecution of the offender. There are rather more numerous cases in which the physician, without criminal intent but through carelessness or negligence, affords the opportunity for diversion of narcotic drugs to improper uses.

Failing to furnish written prescription

The outstanding irregularity noted is the practice on the part of some physicians to telephone to the druggist an order for narcotic drugs without furnishing the required written prescription. A narcotic regulation, (Article 172 of Narcotic Regulation No. 5) provides that in an emergency a druggist may deliver narcotics through his employee or responsible agent pursuant to a telephone order (of the physician) provided the employee or agent is supplied with a properly prepared prescription before delivery is made, which prescription shall be turned over to the druggist and filed by him as required by law. Both the Harrison Law and the Uniform State Narcotic Law require that the sale by the druggist be made only pursuant to a written prescription, which must be kept on the druggist's file. When the

physician fails to leave the written prescription with the patient, the druggist who knows the requirement but does not wish to offend the physician sometimes takes a chance and delivers the narcotic drug without the prescription. In doing so, the druggist is violating the law, and it seems that the physician also, under these circumstances, is violating the law because he aided and abetted the unlawful sale.

There are numbers of reports in the Narcotic Bureau showing how drug addicts and peddlers take advantage of this irregular practice to secure themselves a supply of narcotic drugs. A typical example is that of an addict peddler in a Texas city who telephoned to several drug stores, representing himself to be a physician, and ordered for an alleged patient some magnesium sulphate, sterile cotton, and several 1/16 grain Dilaudid tablets, asking that the order be delivered to a certain address. When the delivery boy approached the address given with the package, he would be intercepted by a man who introduced himself as the physician, took the package and paid for it, and stated that he would furnish the prescription later. No prescriptions were furnished, and before the offender was finally apprehended he had secured from local druggists an appreciable quantity of Dilaudid tablets. Practitioners should comply strictly with the regulation and, when an emergency demands the telephone order, should see to it that the written prescription is available to the druggist no later than the time of delivery of the drug.

Prescribing for patients "sight unseen"

Sometimes a physician will allow himself to be imposed upon by an addict's story to the extent that he issues prescriptions for narcotic drugs for a "patient" whom he has never seen. In the fall of 1948, a woman addict called a local physician by telephone from a New Orleans drug store and represented that her husband and her mother were suffering from severe attacks of diarrhea. Actually, the woman was seeking to obtain paregoric for her own addiction, and she suggested to the physician that some such "medicine" be prescribed for her husband and her mother. The physician then authorized the pharmacist by telephone to fill two prescriptions, each for one ounce of tincture of opium (laudanum); the druggist delivered the two ounces of laudanum to the woman and the physician later transmitted

to the druggist the signed written prescriptions. Later investigation disclosed that the "patients" were nonexistent, and that the woman used this method of obtaining the drug to gratify her addiction.

An unusual method successfully used by addicts to impose upon the credulity of physicians was disclosed by an investigation made in San Francisco in 1943, several physicians having been persuaded by addicts to write prescriptions for morphine in quantities ranging from 30 to 80 1/4 grain tablets. The addict would call on a certain physician and represent that his wife was en route from Salt Lake City or some other eastern point to San Francisco in care of a nurse; that the wife was in very bad physical condition, necessitating the use of morphine. The visitor would represent that the particular physician had been highly recommended and that he wanted the physician to take care of his wife upon her arrival in San Francisco, placing her in a hospital if necessary, and possibly performing an operation. The visitor would then offer to pay the physician a retainer in a sum of from 20 to 50 dollars. The visitor would then inform the physician that his wife was presently in Elko or Winnemucca, Nevada; that she had been obliged to leave the train there because the supply of morphine that had been given the nurse at the time of departure was exhausted. The visitor then prevailed upon the physician to write a prescription for morphine which he said he intended to send to the wife by air mail. On at least one occasion the physician was so taken in by this story that he not only furnished the prescription but retained a room in a local hospital for a week, after which he began to realize that he had been victimized.

Prescribing for patients "on way to institution"

Another method by which physicians are persuaded to prescribe or dispense narcotics for addicts is that of claiming that the addict is on his way to some institution for the purpose of taking treatment, and requires maintenance dosage of morphine until he can reach the institution. Sometimes these addicts will exhibit to the physician a partially filled out application blank for admission to the institution, and they will offer ingenious excuses for delay in actually leaving, to secure continuation of the drug dosage as long as possible. In most of these

cases, the addict has no intention whatever of going to the institution for treatment. In one case in which an addict had actually completed arrangements with the Public Health Service to enter a hospital for treatment, he prevailed upon a physician in Baltimore to furnish him narcotic dosage for a period of about four months upon various excuses for delay, and it was not until a narcotic agent visited the physician to point out that he was being imposed upon that the physician discontinued this dosage, requiring the addict forthwith to go to the institution for treatment.

Other irregularities

There are other types of irregularities, less frequently encountered but more or less likely to result in the diversion of narcotic drugs to improper uses. The issuance of several narcotic prescriptions at the same time but postdated, when the physician or the patient is leaving town, is certainly not authorized, as the law requires that a prescription for narcotic drugs shall be dated and signed on the date when issued. The practice of leaving several prescriptions, signed in blank, with an office assistant or with a pharmacist to be filled in later for patients is obviously dangerous and is unauthorized. Care should be taken in writing each narcotic prescription to see that there is no opportunity for any person to raise the amount which the physician intends to prescribe. Care should also be taken by the physician to safeguard his prescription blanks, as drug addicts seek to obtain such blanks on which they may be able to forge a narcotics prescription.

Even in the case of a patient suffering chronic pain from an incurable disease such as cancer where the physician finds it necessary to prescribe narcotics for palliative treatment, he should exercise care to see that no greater quantity of narcotic drug is made available than is necessary to meet the bona fide medical needs of the patient. There have been instances where the physician has been careless as to the quantity of narcotic drug prescribed, resulting in the accumulation of an excess supply by the patient or the person in charge of him, and such excess has been found to have been sold to others to gratify addiction.

Conclusion

The addict and the peddler are ingenious in devising means of securing a supply of

narcotics by imposing upon the physician or by taking advantage of the physician's carelessness or negligence. It is respectfully urged that the physician should be on guard against such attempts, and should carefully observe the regulations which are designed to diminish the opportunity for diversion of narcotics with minimum interference with the physician's professional activities.

In concluding this discussion, I wish to express the appreciation of the Bureau of Narcotics for the hearty cooperation it has received from the Board of Medical Examiners of the State of North Carolina, and its secretary, Dr. Joseph J. Combs. Under statutory authority, the Bureau reports to the Board the facts in cases of narcotic convictions of physicians, or evidence indicating drug addiction on the part of physicians, in North Carolina. The Board examines such cases and generally takes such action as will tend to obviate future narcotic irregularities on the part of offending physicians.

BULLETIN BOARD

PRESIDENT'S MESSAGE

As I take over the duties of the presidency of the Medical Society of the State of North Carolina, I wish to express my deep feeling of appreciation to my colleagues for the honor they have thus bestowed upon me. I am fully conscious of the responsibilities of the office, and shall do my best to discharge those duties efficiently and with the best interest of the people of North Carolina and the Medical Society of the State of North Carolina always in mind. The splendid job of organizing the central office in Raleigh that has been done by my immediate predecessors, by Dr. Hill, the secretary-treasurer, and Mr. Barnes, the executive secretary, makes my task easier.

There are several things that are of primary concern to us this year. First, and I think foremost, we must use every effort to make the Medical Society Insurance Plan for full payment of professional fees for persons of limited income a success. The Hospital Saving Association now has this, "The Doctors' Program," ready to sell. The number of doctors who are willing to support

this, our own plan, is now of critical importance. At this date a little more than one half of the physicians in active practice have signed the participating agreement. Many more should and must sign, however, if the plan is to be a success and our Medical Society is to fulfill its promise and obligation to the people of North Carolina. The plan may not be perfect, and it may not meet the needs and wishes of all the public or all physicians, but it is the culmination of several years of conscientious study and work by Dr. Hart's committee. Let us all co-operate and give it a trial. Ample provision is made for the correction of any inequalities or shortcomings that experience and time may reveal.

Next, I think it is of immediate importance that we continue to give thought to our public relations. The threat of federalized medicine through compulsory health insurance has been temporarily dissipated, but the issue is not dead—nor will it die as long as the cost of medical and hospital care is a major problem in the experience of so many people. The solution to this problem is the spread of prepayment voluntary insurance to cover the cost of medical care.

There are many more problems involved in good public relations than the cost of medical care, and of these we are becoming more conscious every day. Our Public Relations Committee is planning a strong and effective program for the present year. You will hear more of their plans later, and I invite the co-operation of every member of the Society with the activities of this committee.

In conclusion, may I say that the administrative officers of the Medical Society are your servants in the management of the affairs of the Society. We ask your co-operation, but we also invite your criticism. The doors of the administrative offices are always open to each and every member of our Society.

J. STREET BREWER, M.D.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

March of Dimes grants totaling more than \$26,000 will enable Duke University doctors to continue the fight against polio. The announcement was made jointly by Duke President Hollis Edens and Basil O'Connor, president of the National Foundation for Infantile Paralysis.

The foundation has awarded Duke a grant of \$24,560 for the making of medical movies under the

direction of Dr. J. E. Markee, professor of anatomy, a pioneer in the use of audio-visual aids in medical education.

The foundation has also announced another grant of \$2,150 which will enable Duke Hospital to provide more physical therapy service for Lincoln Hospital.

Duke's School of Physical Therapy will be able to provide physical therapy service for hospitalized and ambulatory Negro polio patients as well as additional training facilities for student physical therapists.

Directors of the program will be Dr. Lenox D. Baker, professor of orthopedic surgery, medical director; and Miss Helen Kaiser, associate in physical rehabilitation, technical director.

* * *

Five Duke University doctors are among some 206 scientists throughout the nation who have just received U. S. Public Health Service grants, **Public Health Reports** revealed recently.

The Duke grants, totaling \$24,499, are for four of 176 research projects being supported by United States Public Health Service at 100 institutions in 34 states and three foreign countries.

The Duke investigators and their grants are Doctors Frank L. Engel and Jack D. Myers, associate professors of medicine, \$10,000 for support of studies on the effects of hormones and metabolic factors on certain liver functions; Dr. Grace P. Kerby, associate in medicine, \$3,780, for research in Pyrogen disappearance from the blood stream; Dr. Samuel P. Martin, assistant professor of medicine, \$7,479, for study of the effect of bacterial products on human leukocytes; Dr. William W. Shingleton, associate in surgery, \$3,240, for studies in the modification of resistance in the sphincter of Oddi.

Another Duke physician, Dr. James B. Golden, assistant resident in neuropsychiatry, has received a United States Public Health Service research fellowship award for research studies under the direction of Dr. Barnes Woodhall, professor of neurosurgery.

* * *

A total of 100 hospital administrators from throughout the South met at Duke Hospital for the Seventh Southern Institute for Hospital Administrators, July 14-18. The program was designed to meet the needs and interests of administrators of the southeast in providing an over-all view of hospital administration, primarily as a basic refresher course.

* * *

Duke Hospital has just opened a new speech service for harelip and cleft palate children of North Carolina, according to an announcement by Dr. Murray M. Halfond, medical speech pathologist. Six children from throughout the state are attending a six week summer session under the direction of Dr. Halfond. The program has been arranged by the Social Service Department of Duke Hospital in cooperation with state agencies.

All six youngsters have undergone plastic surgery at Duke, and speech treatment has been recommended.

NORTH CAROLINA HEART ASSOCIATION

Rounding out its fourth year of financial support for research into heart and blood vessel diseases, the American Heart Association has approved 72 grants-in-aid totaling \$361,522.50, according to an announcement by Dr. Irving S. Wright, president. Five of these grants, totaling \$25,305, are to institutions in North Carolina. The investigations are also being conducted in 19 other states, the District

of Columbia, Montreal, and Beirut, Lebanon. Dr. Wright said the latest awards raise to over four million dollars the combined total spent for cardiovascular research projects by the national office and its state and local affiliates since the Association was reorganized as a voluntary health agency in 1948.

In addition to the grants-in-aid, the American Heart Association's research program includes 38 Established Investigatorships and Research Fellowships totaling \$191,650, of which four are to scientists working in North Carolina. These grants to individuals bring the total research funds sent to this state by the American Heart Association to approximately \$45,000. In addition, the North Carolina Heart Association has made a special grant to Dr. W. C. Sealy, thoracic surgeon at Duke Hospital.

The list of grants to North Carolina institutions and individuals is as follows:

Chapel Hill—University of North Carolina School of Medicine

Dr. C. Bruce Taylor, investigator. Evaluation of the *Macacus rhesus* monkey as an experimental animal for the production of atherosclerosis, including studies on cholesterol metabolism.

Durham—Duke University School of Medicine

Dr. James V. Warren, investigator. Response of blood vessels in the lungs to circulatory disturbance.

Winston-Salem—Bowman Gray School of Medicine of Wake Forest College

1. Dr. Jerry K. Aikawa, investigator. Factors of immunity and their possible relationship to rheumatic fever.

2. Dr. Harold D. Green, investigator. Nature of constriction and dilation of the blood vessels.

3. Dr. C. Glenn Sawyer, investigator. Diseases of the pericardium, the membranous sac surrounding the heart.

Extension of Established Investigatorships: (range of stipend, \$6,000-\$9,000).

Durham—Dr. Wilfried F.H.M. Mommaerts (biochemistry of muscular contraction).

Winston-Salem—Dr. Jerry K. Aikawa (immunophysiology).

Renewal Research Fellowship: (range of stipend, \$3,500-\$5,500).

Durham—Dr. Philip A. Khairallah (biochemistry of heart muscle proteins).

New Research Fellowship:

Durham—Dr. Robert F. Kibler (splanchnic circulation and metabolism).

NORTH CAROLINA SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

During 1950-51 Easter Seal sent over 26 children to camp, some for the first time. Crippled arms and legs do not slow one up in the water. Success in one activity sometimes inspires the handicapped child to greater effort in overcoming his or her handicap.

There are three camps in the state especially for handicapped children: Camp Sky Ranch in Blowing Rock, Riverside Park near Washington, and Crippled Children's Camp near Salisbury. Camp Sky Ranch, a privately owned camp, opens in July for two weeks' camping periods throughout the summer. For full information, rates, etc., write Mr. Marvin L. Culbreth, Secretary, Camp Sky Ranch, Blowing Rock, North Carolina. Riverside Park is a project of the Crippled Children's Section of the State Board of Health. Admission to this camp must be obtained through recommendation of orthopedic clinics in Eastern North Carolina. The

Crippled Children's Camp in Salisbury is operated by the Salisbury Kiwanis Club in cooperation with the Crippled Children's Section of the State Board of Health and the North Carolina Society for Crippled Children. Admission may be obtained only through the orthopedic clinic in Salisbury this year.

A number of other North Carolina camps will accept children with less severe handicaps.

NORTH CAROLINA TUBERCULOSIS ASSOCIATION

Miss Elizabeth Smith of Goldsboro, president of the North Carolina Tuberculosis Association, has announced the appointment of C. Scott Venable as the new executive secretary of the association. He succeeds Frank W. Webster, who resigned recently to become executive secretary of the American Trudeau Society.

Born in Chester, Pennsylvania, Venable attended the Episcopal Academy in Philadelphia, and was graduated from the University of North Carolina with a B.S. Degree in Commerce. For the past three years he has been employed by the North Carolina Tuberculosis Association as a field secretary in the western territory. Venable is a member of the National Conference of Tuberculosis Workers and has acted as advisor to the Rehabilitation Committee of the North Carolina Conference of Tuberculosis Secretaries.

He assumed his new duties with the association on June 1.

NEW HANOVER COUNTY MEDICAL SYMPOSIUM

The name of Dr. R. L. Sanders, professor of surgery of the University of Tennessee, was inadvertently omitted from the program of the New Hanover County Medical Symposium, which appeared in the Bulletin Board for June. The complete list of speakers and their subjects is as follows: Dr. H. Hudnall Ware, Jr., professor of obstetrics, Medical College of Virginia—"Toxemia of Pregnancy"; Dr. Virgil P. W. Sydenstricker, professor of medicine, Medical College of Georgia—"Collagen Diseases"; Dr. Eugene P. Pendergrass, professor of radiology, University of Pennsylvania Medical School—"Cancer of the Lung with Comment Concerning Some of the Difficulties of Early Diagnosis"; Dr. Joseph Stokes, Jr., professor of pediatrics, University of Pennsylvania Medical School—"Recent Studies in Certain Viral Diseases"; Dr. R. L. Sanders, professor of surgery, University of Tennessee College of Medicine—"Surgical Lesions of the Colon."

HALIFAX COUNTY MEDICAL SOCIETY

The Halifax County Medical Society held its regular monthly dinner and meeting at the Roanoke Rapids Hospital on Friday, June 13. Speaker of the evening was Dr. Julian C. Brantley, Jr., of Rocky Mount, and Dr. J. H. Cutchin, Jr., made the response.

EDGECOMB-NASH MEDICAL SOCIETY

The regular monthly meeting of the Edgecomb-Nash Medical Society was held June 11 at the Benvenue Country Club. The program was in charge of Dr. J. H. Cutchin, who presented as the speaker of the evening Dr. Robert Young, Halifax County health officer. Dr. Young spoke on "Recent Trends in Preventive Medicine and Public Health." An additional feature of the meeting was a report by the delegates from the society to the meeting of the Medical Society of North Carolina.

NEWS NOTES

The President and Fellows of Harvard College, at its three hundred sixteenth commencement June 19, 1952, awarded the honorary degree of Doctor of Science to Brigadier General James Stevens Simmons, U. S. Army Retired, Dean of the Harvard School of Public Health. The citation read by President Conant was as follows: "James Stevens Simmons, Physician, Bacteriologist, Army Medical Officer; as a General a vigilant guardian of the health of troops; as a Dean the imaginative rebuilders of the Harvard School of Public Health." General Simmons is a native of Alamance County, North Carolina, and has relatives in this state.

AMERICAN COLLEGE OF SURGEONS

Surgeons from all parts of the nation and a number of foreign countries will participate in the thirty-eighth annual Clinical Congress of the American College of Surgeons which opens at the Waldorf-Astoria in New York City September 22 and continues through September 26. Attendance at this largest scientific meeting of its kind in the world is expected to reach 10,000.

Recent developments in surgical and clinical techniques will be discussed in hundreds of reports by leading surgeons at this five day educational meeting. The program includes clinics, postgraduate courses, forums, panel discussions, color television, cine clinics, medical motion pictures, and scientific and technical exhibits.

AMERICAN BOARD OF CLINICAL CHEMISTRY

The American Board of Clinical Chemistry, Inc., has, by amending the By-Laws, extended the period during which the Board will review applications for Certifications of Clinical Chemists without examination, from July 1, 1952, to December 31, 1952. Applications filed before the December date will be considered by the Board at subsequent meetings.

The fee for each application form was increased from \$1.00 to \$3.00, which will only partly defray the office expense involved in handling these forms. The application forms may be obtained from Jos. W. E. Harrison, Sc.D., Secretary-Treasurer, American Board of Clinical Chemistry, Inc., 1921 Walnut St., Philadelphia 3, Pennsylvania, upon forwarding the fee and the name of the applicant as it is to be recorded.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

Of special interest to the medical profession is the short subject film—"Your Doctor"—now being released by RKO Pathe to theaters from coast to coast. This 17 minute film tells the story of the American Medical Association's contribution to modern medicine in the field of rural health and medical education. It will be available to all theaters through RKO Pathe distribution offices.

* * *

The A.M.A.'s Council on Pharmacy and Chemistry announces that new editions of two of its major publications—New and Nonofficial Remedies and Useful Drugs—will be available this summer. The 1952 edition of New and Nonofficial Remedies retails for three dollars postpaid and Useful Drugs (15th edition) for \$2.50 postpaid. Both may be secured through the publishers, J. B. Lippincott Company, Philadelphia, bookstores, or single copies through the A.M.A.'s Order Department.

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A new series of electrical transcriptions on industrial health will be available from the A.M.A.'s Bureau of Health Education July 15 for use by local radio stations. The 13 programs in the series point up various phases of the industrial health field.

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At its June meeting in Chicago, the A.M.A.'s House of Delegates refused to modify its interpretation of the status of osteopaths. A resolution which would have permitted physicians to teach in osteopathic schools was turned down by the House. It did recommend, however, that the Board of Trustees appoint a committee to meet with osteopathic leaders to discuss osteopathic education.

* * *

The A.M.A.'s House of Delegates endorsed the stand taken previously by its officers in criticising the political motives of the President's Commission on the Health Needs of the Nation at its June meeting in Chicago. The Association believes that the commission was appointed in an adroit move to pull the question of socialized medicine out of the elections this fall.

* * *

A progress report summarizing extensive research which is being conducted on federal medical services to dependents of servicemen and to veterans with non-service-connected disabilities, and the processing of patients between armed forces and veterans hospitals was submitted to the A.M.A.'s House of Delegates meeting in June. The special subcommittee expects to make a complete report, with specific recommendations, in December.

* * *

The A.M.A.'s House of Delegates officially abolished fellowship in the Association at its June sessions in Chicago. Provision has been made for service, affiliate, and honorary fellowships to be incorporated in the membership classification. All candidates for membership in the Association will be screened by the Judicial Council prior to acceptance.

* * *

The whole status of medical internship—including supply and demand—is being re-studied by a special committee under the auspices of the A.M.A.'s Council on Medical Education and Hospitals. Dr. Victor Johnson, director of the Mayo Foundation for Medical Education and Research, is chairman of the committee which is made up of outstanding leaders in the hospital field throughout the United States.

AMERICAN HEART ASSOCIATION

Scientific investigators of three nations who have been studying the comparative value of treating rheumatic fever with one of the hormones, ACTH or cortisone, or with aspirin, have announced that although the acute symptoms of this disease usually subside with all three agents, no clear difference was as yet apparent in the rate of completeness of this improvement.

The report stated, "Although individual symptoms may appear to be affected more favorably by one or another of these drugs, no consistent pattern is evident which would allow any conclusion concerning the drug most effective for control of the acute illness."

It was pointed out that the results reported upon did not include any information on "the crucial question" of the comparative effectiveness of the three drugs in preventing chronic heart disease, which frequently follows rheumatic fever. The study will continue in an effort to arrive at an answer to this "important problem."

The cooperative rheumatic fever study, first of its kind in this field, is being conducted at 13 research centers in the United States, Great Britain and Canada. A central coordinating center is located in New York City. The preliminary report of its findings was presented at a joint scientific session of the American Heart Association's Council on Rheumatic Fever and the American Rheumatism Association on Saturday, June 7, at the Conrad Hilton Hotel in Chicago.

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An annual award to be known as the Howard W. Blakeslee Award, has been established by the American Heart Association to encourage high standards of medical reporting in all media of developments in the field of heart and blood vessel diseases, according to an announcement by Dr. Irving S. Wright, president of the association. Dr. Wright explained that the award was named in honor of Mr. Blakeslee, who recently died of heart disease, because of "his outstanding contributions toward raising the level of scientific reporting."

Mr. Blakeslee was science editor of the Associated Press. He was a founder of the National Association of Science Writers, which officially endorsed the award at its annual meeting in Chicago recently.

As approved by the American Heart Association's Board of Directors, the Howard W. Blakeslee Award will be presented annually to the individual whose creative efforts in any medium of mass communication—including press, magazines, radio, television, films and books—contribute most to public understanding of the cardiovascular diseases.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC.

Eighteen outstanding professional persons, representing every section of the United States as well as Canada and Switzerland, have been named winners of important graduate fellowships for special training as employment and placement counselors for cerebral palsied and other severely crippled persons, Lawrence J. Linck, executive director of the National Society for Crippled Children and Adults, the Easter Seal Society, announced recently.

The fellowships, sponsored jointly for the fourth consecutive year by the National Society and Alpha Gamma Delta, international women's fraternity, are for a four week training course at the Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center, July 7 through August 1.

UNITED STATES ATOMIC ENERGY COMMISSION

On July 1, 1952, the United States Atomic Energy Commission began charging 20 per cent of production costs for radioisotopes used in the study, diagnosis, or treatment of cancer, thus ending its former policy of making radioisotopes available for cancer studies and treatment free of charge for production costs. More than \$1,400,000 worth of radioisotopes have been distributed under this program since 1948. Users have paid transportation and handling costs, but the cost of production has been borne by the AEC.

DEPARTMENT OF THE ARMY

The Army Medical Service will celebrate its one hundred seventy-seventh anniversary on Sunday, July 27, 1952.

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The Army Medical Service will conduct 17 short postgraduate courses in surgery, psychiatry, and other subjects of major medical importance during the last six months of 1952, the Department of the Army has announced.

The instruction is open to both military and civilian physicians and is the broadest program of postgraduate professional training of this type ever sponsored by the Army Medical Service, according to Major General George E. Armstrong, MC, Army Surgeon General. The courses will be given at six large Army teaching hospitals and the Armed Forces Institute of Pathology in Washington, D. C.

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New plastic bags may replace glass bottles as containers of whole blood for military use if current tests by the Army Medical Service confirm that the plastic holders facilitate transfusions and substantially reduce the bulk of shipments.

Major General George E. Armstrong, MC, Army Surgeon General, announced recently that the plastic containers had proved equally valuable in both field trials and hospital use. Blood packaged in the 6 x 8 inch bags occupies only one half the space required by glass bottles now in use and can be air-dropped to troops in combat without breakage.

Physicians at Brooke Army Medical Center, Fort Sam Houston, Texas, and Walter Reed Army Medical Center, Washington, D. C., report that arterial transfusions are easier and safer to give when whole blood can be forced into the patient's bloodstream by direct hand pressure on the plastic container. This eliminates the need for special apparatus to build up pressure with the attendant danger of air entering the system.

The bags are also used for collecting blood from donors at the test centers. Although they do not have the vacuum pull incorporated in the bottles, the plastic units can fill in eight to 16 minutes with the aid of gravity and the donor's muscular efforts.

Air shipment of whole blood to Korea and other overseas areas will be greatly facilitated because of the small weight and bulk of the plastic containers compared to the glass bottles. Storage of the empty bags will require one quarter of the space occupied by the glass bottles.

Each bag comes collapsed around 75 cc. of anti-coagulant, ready to receive blood from a donor. One type comes with donor tubing attached which may be used as a hanging device; a second has a measuring device on its side to indicate the amount of blood it contains.

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A team composed of two Army medical officers and a civilian physician left Friday, June 20, for Korea to evaluate the use of Dextran, a plasma volume expander, under battle conditions, the Department of the Army has announced.

Dextran, developed originally in Sweden during World War II, will not be used routinely in combat as long as the supply of whole blood and plasma is adequate to meet the demand. There is no substitute for whole blood and even plasma contains proteins, which dextran lacks.

Dextran does, however, act as an expander to maintain volume in the circulatory system. It is made primarily of sugar, molasses, and beet juice. The armed forces and the Federal Civil Defense Administration would probably have to rely on one of the plasma expanders now being investigated in the event of full-scale war or civilian disaster at

home. The National Research Council has evaluated Dextran clinically and authorized the Defense Department to stockpile it as an emergency reserve. It has also been approved by the Federal Food and Drug Administration.

FEDERAL SECURITY AGENCY

Public Health Service

Dr. G. Halsey Hunt has been appointed an assistant surgeon general of the Public Health Service, Federal Security Agency, Surgeon General Leonard A. Scheele announced recently. He will serve as associate chief of the Bureau of Medical Services, which is under the direction of Dr. Jack Masur. Dr. Hunt was formerly chief of the Division of Hospitals.

The Bureau of Medical Services administers most of the direct medical care functions of the Public Health Service, managing its 22 hospitals located in major seaport cities and over 100 outpatient facilities. The Bureau also includes the Division of Foreign Quarantine, divisions concerned with medical, hospital, dental and nursing resources, and is responsible for the administration of the Hospital Survey and Construction Act.

(BULLETIN BOARD CONTINUED ON PAGE 360)

BOOK REVIEWS

Condensed Review of Pharmacy. By George W. Fiero. Ed. 7. 122 pages. Price, \$3.25. New York: John Wiley and Sons, 1952.

For many years an invaluable aid to pharmacists, doctors, nurses, and students preparing for examinations, *Condensed Review of Pharmacy* by George W. Fiero, has been published in a new seventh edition by John Wiley and Sons.

A complete compendium of drugs, chemicals, and pharmaceutical preparations, Dr. Fiero's book opens with a preparatory review of practical pharmaceutical operations, calculations, and abbreviations. The following section, on Galenical pharmacy, covers such official preparations as syrups, lotions, liniments, tinctures, tablets, powders, and ointments. Vegetable and animal drugs; assayed drugs; active plant constituents; biologic preparations; and organic and inorganic chemicals are treated in the author's section on *Materia Medica*. The volume also includes sections on toxicology and elementary chemistry.

Dr. Fiero, who is with the manufacturing department of the Esso Standard Oil Company, has checked his revision against the latest editions of the United States Pharmacopeia and the National Formulary to bring his volume thoroughly up to date. A convenient column arrangement has been used to present the material.

Congenital Malformations of the Heart. By Helen B. Taussig. 618 pages. Price, \$10.00. New York: The Commonwealth Fund, 1947.

Dr. Taussig, an associate professor of Pediatrics at Johns Hopkins University, has made an outstanding contribution to the field of congenital heart disease. The plan which she has followed in writing this book is a sound one. The first part of her book deals with the physiology of the malformed heart and the methods of diagnosis. In the second part she discusses malformations which deprive the body of an adequate amount of oxygenated blood. The third part deals with malformations which permit the body to receive an adequate amount of

oxygenated blood and thus allow life for many years. The fourth part is concerned with therapeutic measures. In view of the advancing field in cardiac surgery, this part will need frequent revisions.

One of the outstanding features of her book is the many color plates, diagrams, and x-ray reproductions. This method of presentation allows the clinician to grasp quickly the fundamentals of the various congenital malformations.

The book is an invaluable source reference for the practicing physician. Its one real disadvantage is its lack of conciseness. With a more orderly approach the book could have been considerably reduced in size without a loss of essential content.

Another limitation of this book for those actively engaged in congenital heart work is that the author has made no effort to correlate the clinical picture of the various disorders with the physiologic knowledge which has been recently gained through cardiac catheterization. Further discussion regarding recent surgical developments should also be included in the text.

Despite these deficits the book remains a worthy addition to the field of congenital heart disease.

Neurosurgery: An Historical Sketch. By Gilbert Horrax, M.D. 142 pages, 69 illustrations, 181 references. Price, \$3.75. Springfield, Illinois: Charles C Thomas, 1952.

This is a short, concise treatise on a subject which could fill, literally, hundreds of pages. It has been written by a master in the field of neurosurgery, one whose active neurosurgical life has covered the recent 30 years during which most of the advance in the field of neurosurgery has been made. It is therefore of considerable value in its contribution to the accuracy of historical facts.

There is a brief account of the ancient history of neurosurgery which is purposely incomplete, the reader being referred to more complete volumes on this subject. The more recent development of the field of neurosurgery since the time of Horsley, covering the days of Cushing, Dandy, and others, is given in detail, together with the author's own valuable comments about the importance of each contribution. The illustrations are well chosen, there are unusual photographs of some of the foremost contributors to the field of neurosurgery, and the book is so written as to be of interest even to the casual reader. To those devoting their lives to neurology and neurosurgery, it will stand as a significant contribution by a man who has a broad perspective in the field of neurosurgery. The book itself reflects the usual excellent quality of Charles C Thomas publications.

Textbook of Clinical Neurology. By Israel S. Wechsler, M.D. Ed. 7. 801 pages. Price, \$9.50. Philadelphia and London: W. B. Saunders Company, 1952.

The latest edition of Wechsler's standard text on neurology has minor additions, including electroencephalography, special forms of psychological examination, and especially the treatment of infections of the nervous system. However, the general form of the book and its approach have not been significantly changed. It comprises a reasonably complete, cursory review of the method of history taking and the neurologic examination, the major organic syndromes and diseases of the nervous system, the neuroses, and the history of neurology.

In general, the approach is primarily descriptive. In this connection there is an unfortunate tendency

to list in detail the symptoms to be anticipated in a given disease without correlating this too closely with the basic physiologic mechanism responsible for the development of these symptoms. This tendency is most strikingly evident, for example, in the discussion of the convulsive state. The description of grand mal, petit mal, and psychomotor seizures is given in some detail, but nothing is said concerning the detailed studies of Penfiels and others relative to the relationship between the seizure pattern and locus of origin of the abnormal discharge.

The book presents a brief, concise, up-to-date review of the principle neurologic disorders. From a descriptive point of view it is accurate and moderately complete. As a reference text, it is inclined to be lacking in analysis and correlation of the clinical, pathologic, and physiologic findings.

Long Established Philadelphia Publishing House Will Move to New York

The Blakiston Company, medical and scientific publishers in Philadelphia for over one hundred years, will leave its Walnut Street headquarters in late summer of 1952 and move to 575 Madison Avenue, New York 22, where it will occupy offices with its parent organization, Doubleday and Company, Inc.

The move was announced by Frank Egner, recently appointed General Manager of Blakiston. Mr. Egner, a member of the Doubleday executive staff, was former president of Funk and Wagnalls and for many years a vice president of the McGraw-Hill Book Company.

In his announcement Mr. Egner said, "This move will give Blakiston closer working arrangements with the whole Doubleday organization and will afford Blakiston books greatly increased sales, production, and editorial facilities. The forward-looking Blakiston editorial program—aiming to keep abreast of the new trends in teaching techniques in all branches of the medical sciences, including dentistry, pharmacy, and veterinary medicine, and also such subjects as are embraced within the scope of chemistry, physics, zoology and botany, including agriculture—will be further strengthened by the development of a number of notable new textbooks planned and projected to meet current needs."

Mrs. Eunice Stevens has been appointed editor-in-chief and James B. Lackey continues as science editor. Gilbert S. Cooper continues as sales and business manager and Miss Laura E. Moore and Willard T. Shoener continue as manuscript editor and production manager respectively.

Overseas Institutions Welcome "CARE" Delivery of U. S. Pharmaceutical Book

Pharmaceutical and medical libraries in Europe and Asia have given grateful reception to a CARE Book Fund distribution of 1,000 copies of Remington's *The Practice of Pharmacy*.

Donors of the gift were E. Fullerton Cook and Eric W. Martin, the editors, and Mack Publishing Company, the publishers of this standard American pharmaceutical volume; the Philadelphia College of Pharmacy and Science, and Burroughs Wellcome and Company, Inc.

Their various contributions made it possible for CARE to obtain and deliver the books overseas. Sharing in the distribution, which had a retail value of \$16,500, were pharmaceutical and medical schools and organizations, universities, research institutes, hospitals, and allied institutions in 16 countries.

BULLETIN BOARD

(CONTINUED FROM PAGE 358)

The Public Health Service of the Federal Security Agency announced today that during the first half of the current fiscal year 249 new research grants have been made to universities, hospitals, medical and dental schools, and other non-Federal research institutions to help support medical and scientific research activities.

The grants were made by the Surgeon General of the Public Health Service through the National Cancer Institute, the National Heart Institute, the National Institute of Arthritis and Metabolic Diseases, the National Institute of Dental Research, the National Institute of Mental Health, the National Institute of Neurological Diseases and Blindness, the National Microbiological Institute and the Division of Research Grants of the National Institutes of Health.

New grants were awarded to the following North Carolinians: Dr. T. Z. Csaky, University of North Carolina—A study of the metabolism and the physiological utilization and actions of methyl ethers of monosaccharides; Dr. Douglas George Humm, University of North Carolina—An investigation of a special respiratory system in the adrenal gland; Dr. Theodore B. Schwartz, Duke University—Evaluation of peptidase activity of surviving tissue; Dr. Albert G. Smith, Duke University—Studies on the cellular origin and development of chemically induced testicular tumors. Merrill P. Spencer, Bowman Gray School of Medicine of Wake Forest College—Circulation in the kidney.

* * *

Mutual rabies control programs and the prompt reporting of rabies cases in all animals were among the major recommendations made at the South Middle Atlantic Regional Rabies Conference, held recently in the Federal Security Building, Washington, D. C.

The conference was called by the Public Health Service staff of the Region III Office of the Federal Security Agency, and was co-sponsored by the Fish and Wildlife Service of the Interior Department and the Bureau of Animal Industry of the Department of Agriculture.

An Eastern Regional Rabies Council was established to develop plans and procedures to put the recommendations of the Conference into effect. This Council will be a continuing body representing all the states which took part in the conference.

Pointing to the continuing necessity for maintaining health safeguards, the conference stressed the need for dog immunization clinics and for the control of stray dogs. It called attention to the increase in rabies in the wild life in this area, particularly in foxes and skunks, and the increased dangers of infection in cattle and such domestic animals as cats and dogs.

Dr. Martin P. Hines, Chief of the Veterinary Public Health Section, North Carolina State Board of Health, was named Chairman of the Regional Rabies Council and Dr. Albert S. McCown, Director of the Bureau of Communicable Disease Control, Virginia State Health Department, was named Secretary.

* * *

Appointment of Dr. Norman B. McCullough as Chief of Clinical Research at the Microbiological Institute of the National Institutes of Health, Bethesda, Maryland, was recently announced by Surgeon General Leonard A. Scheele of the Public Health Service, Federal Security Agency.

The newly established unit which Dr. McCullough heads will conduct clinical investigations on infec-

tious and tropical diseases at the National Institutes of Health's Clinical Center, now under construction and scheduled to open in the spring of 1953.

* * *

Children's Bureau

Parents who have been baffled by children's "endless questions," by the "mess, confusion, and clutter" they make of their homes, by the gang "loyalties" that get in the way of parental discipline, can get some help in understanding their youngsters from a publication just issued by the Children's Bureau. The publication is entitled "A Healthy Personality for Your Child."

Dr. Martha M. Eliot, Chief of the Children's Bureau, reported that the publication is a popular version of a part of the Fact Finding Report on healthy personality development which was prepared for the Midcentury White House Conference on Children and Youth, which met in Washington in December, 1950.

The original report was the product of a committee which included doctors, psychologists, anthropologists, social workers, clergymen, delinquency experts, lawyers, educators, and specialists in youth employment, recreation, and child development.

* * *

Useful information for parents who have a child with epilepsy, or whose child is hard of hearing, is contained in two new pamphlets of the Children's Bureau of the Federal Security Agency. The pamphlets are entitled "The Child with Epilepsy" and "The Child Who is Hard of Hearing." They are the second and third of a series by the Children's Bureau dealing with handicapping conditions of childhood. Already issued is "The Child with Cerebral Palsy."

Each of these pamphlets may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for five cents per copy.

VETERANS ADMINISTRATION

Funds to provide automobiles for seriously disabled veterans and to pay indemnity claims to dependents of deceased servicemen were made available to Veterans Administration in a bill signed by the President last month.

The Third Supplemental Appropriations Bill provides VA with more than \$285,000,000 for veterans benefits which includes \$25,000,000 for automobiles and \$2,300,000 for servicemen indemnity claims. Also included in the Bill are \$148,000,000 for subsistence and tuition payments for veterans receiving education or training under the GI Bill; \$60,000,000 for compensation and pension payments; and \$50,000,000 for extra-hazardous deaths under the National Service Life Insurance Act.

Funds to pay indemnity claims to dependents of servicemen and eligible veterans who died since the beginning of the Korean conflict have been exhausted since the latter part of April, 1952, when 7,553 claims had been approved for monthly payments. VA will make retroactive payments to those dependents.

Classified Advertisements

FOR SALE: Used Medical Equipment, including Prof. X-ray unit. Contact John O. Redding, M.D., Asheboro, N. C.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

AUGUST, 1952

THE PRESIDENTIAL NOMINEES

Not since 1932 has so much interest been
shown in the outcome of a political conven-
tion as this year. In 1932 the interest was
centered almost entirely on the outcome of
the Democratic convention, which finally
nominated Franklin D. Roosevelt for his
first term; the nomination of Herbert Hoover
by the Republicans was a foregone con-
clusion.

This year there was perhaps as much in-
terest in one convention as in the other. Each

party had a number of strong candidates for
its leader, and the backers of every candi-
date were prepared to fight to the last ditch
for their man. Not only was interest at fever
heat in the International Amphitheater in
Chicago—in spite of its air conditioning—
but few radios or television sets in the coun-
try were not in touch with the proceedings
of the two parties.

Although rabid followers of defeated can-
didates will object, the statement can be de-
fended that each party selected its strongest
candidate. It is true that some objection can
be offered to each. Against Eisenhower is
charged the fact that he is a military man;
that he lacks experience in government; and
that he is not a church member. Of Steven-
son it is said that he was an unwilling candi-
date, and hence not apt to be as aggressive
as if he had sought the nomination; also
that he was playing the most subtle possible
political game when he made his nomination
the nearest approach to a real draft that this
generation has ever known. His divorce has
also been used as an argument against him,
and his church connection "is a little vague.
He is listed as a Unitarian . . . although he
reportedly attends a Presbyterian church
when he is in Chicago."⁽¹⁾

In reply, it may be said that Eisenhower's
vote-getting ability was shown by a Gallup
poll far more decisive than was the famous
one predicting Dewey's election in 1948. Not
only was Eisenhower given a substantial
majority of Republican voters by Dr. Gallup;
the poll showed that 50 per cent of the inde-
pendent voters favored him, with only 18
per cent for Taft, and the rest undecided or
scattered over the remaining Republican can-
didates. It is becoming increasingly obvious
that each candidate—and especially the Re-
publican nominee—must depend upon the
independent vote for election. As for a mili-
tary man in the White House, it is admitted
that General Grant was a monumental fail-
ure (though hardly less so than was Editor
Harding); but Generals George Washington
and Andrew Jackson did not do so badly. As

for the church connections of each man, it can not be denied that "in their speeches, Governor Stevenson and General Eisenhower have both expressed sincere religious convictions."⁽¹⁾

Of Stevenson it must be admitted that his unwillingness to be nominated was, from all that can be learned, quite sincere. The fact that he firmly refused to become Truman's Crown Prince and that he is under no obligations to any other politician or group of politicians certainly gives him a great advantage over any of the other candidates. Those who know the inside story of his divorce feel that he is not to blame for it.

Stevenson's greatest handicap is the long record of corruption, the undeniable trend to socialism, the reckless extravagance, and the vacillating foreign policy of the Democratic party. Favoring him is the fact that there are almost enough federal employees and their dependents, plus the almost solid labor vote, to carry the election. If those who are directly or indirectly beneficiaries of the federal government are added, there will be more than enough.

Both candidates are men of high character, of unquestioned integrity, and of proven ability. While the campaign will be one of the hardest fought on record, it will probably be conducted on as high a plane—certainly so far as the principals are concerned—as any we have ever had.

1. Editorial, *Charity and Children*, August 7, 1952.

THE PRESS AND MEDICAL RESPONSIBILITY

The *New York State Journal of Medicine* for August 15 bases an editorial upon an editorial in the *Westchester Medical Bulletin*. The combined effort is so timely that this journal is again borrowing from our Yankee colleague, by quoting part of this comment on the press and medical responsibility.

* * *

"THE PRESS AND MEDICAL RESPONSIBILITY. The *Westchester Medical Bulletin* comments editorially:⁽¹⁾

"In the February issue of *Harper's Magazine* there is an article entitled 'The Truth About the "Drug Menace."' This item rather effectively deflates the national hysteria on juvenile narcotic addiction. Quoting as his authority the Federal Bureau of Narcotics, the author claims that there is 50 per

cent less narcotic addiction than there was a generation ago. For the first time in modern history it is stated there are vacant beds in the Federal Narcotics Hospital in Lexington, Kentucky.

"In contrast to the horrifying spectacle splashed across the nation of 'hundreds of thousands of dope fiends,' there are at the moment, the Federal Bureau of Narcotics insists, only 50,000 or 60,000 drug addicts in the United States. And most of these, along with the peddlers who serve them, are clustered in seven major cities—New York, Baltimore, Philadelphia, Detroit, Chicago, New Orleans and Washington, D. C."

"The alarming pictures given a few months ago through the public press and several topflight lay magazines of national circulation make one wonder. Both portrayals cannot be right.

"More recently the widespread publicity given prematurely to two new drugs under controlled study in the treatment of tuberculosis would appear to have been greatly exaggerated. Responsible reports from those in a position to know would seem to indicate two new useful drugs but certainly no basis for some assertions that were made in the press such as no bed patients now at Sea View Hospital. The New York City Commissioner of Hospitals, if correctly quoted, apparently envisioned an early conversion of the city's presently inadequate supply of tuberculosis beds to other usage.

"It is quite obvious, on the basis of present available knowledge of these drugs, the publicity given them was extravagant and unwarranted. We do not purport to know who was responsible.

"We hold that in both of these instances, the juvenile narcotic addiction scare and the tuberculosis 'miracle' drugs, the medical profession has a grave and serious responsibility to prevent and discourage in every possible way the providing of incorrect or inadequately documented medical information to the public press. The profession is often criticized for its ultra-conservatism on such matters. It can be more justifiably criticized for encouraging or supporting incorrect or premature medical information."

"Raising of false hopes for the sick is always regrettable, and we think that on the whole the press of this country has exercised a laudable restraint with respect to new departures in the medical field.

"Occasionally, some physicians join the ranks of the optimists perhaps a little prematurely and with too little clinical justification. But this does not happen too frequently. On the contrary, the profession is, latterly, charged with being too conservative, too critical, even 'reactionary' at times. In the public interest it seems to be just as well that the scientific attitude of constructive criticism and conservatism be adhered to.

"If this is done, the responsible working press, deriving its information on medical matters from the profession, can be relied upon to remain within the confines of common sense, good taste, and moderate statement."

1. June, 1952, p. 17.

BULLETIN BOARD

PRESIDENT'S MESSAGE

As a member of a special committee from the State Medical Society, I had the opportunity a few months ago of meeting with the State Commissioner of Public Welfare and members of the Board's staff to review the several programs of the State Board of Public Welfare which have medical implications. I was glad to find the State Board of Public Welfare carefully and intelligently administering these programs with medical advice and an awareness of the principles which we as members of the medical profession have found to be sound.

These programs of the State Board of Public Welfare touch the interests and are dependent upon the skills of the medical profession at more points than one might suppose. For example, one of the newest services to be made available is Aid to the Permanently and Totally Disabled. This program was instituted in North Carolina in March, 1951, and under it approximately 4,200 persons are receiving aid. Each one of these persons has to meet the basic requirement for aid under any and all of the programs of the State Board of Public Welfare—that is, he must be found to be in need. This fact is determined by careful investigation of the applicant's resources and those of his parents and children. Persons whose families are able to care for them are not eligible to receive assistance. Parents are expected to care for their children, and children are expected to care for their aged or disabled parents.

The question of permanent and total disability must be determined by competent medical authority. On the basis of a medical examination by a local medical doctor, the State Board Medical Consultant, who is a Raleigh physician, makes his recommendations as to the applicant's mental or physical qualification for aid under the law.

In addition to the program of Aid to the Permanently and Totally Disabled, the State Board of Public Welfare administers other programs which are based upon proven need and which have medical implications. Before I mention these, however, I wish to make it clear that it is not possible under State Board policies for a person to qualify for more than one type of aid at a given time. Among these

other programs and services are Old Age Assistance for those past 65, the School-Health Program, Crippled Children's Services, the Orthopedic Hospital, and the Hospital for Children with Cerebral Palsy. The State Board of Welfare also certifies indigency to the Medical Care Commission in connection with state contribution to hospitals for the care of indigents, and provides service for a group of children through the State Boarding Home Fund. The foster homes that care for these children are licensed by the State Board of Public Welfare.

There is also the Division of Psychiatric and Psychological Services, employing four clinical psychologists who follow a regular schedule in giving examinations to persons referred through the county Department of Public Welfare by the schools, juvenile courts, private agencies, and health departments.

One of the problems which the state agency faces occasionally is that of placement of babies by doctors and hospitals. The state laws concerning the care and protection of children are clear on such points as the following: separation of a baby under 6 months of age from its mother, the interstate placement of children, and the basic adoption law. All three must be handled by a public welfare agency or a licensed private welfare agency. It is against the law for doctors or hospital to place children for adoption without the consent and cooperation of a public welfare agency or a licensed private welfare agency.

The State Board of Public Welfare also licenses boarding homes for the care of adults. This program works mainly with aged and infirmed. At the present time there are 152 licensed boarding homes for adults in 53 counties. The cost of care in these homes ranges from \$35.00 to \$300.00 per month..

And finally, there is a new program of hospitalization for public assistance recipients. This was begun in 1951, when an appropriation from the legislature of \$112,500.00 was ear-marked for this purpose under the new federal program, which is the extension of the Social Security Act. Funds are available on a \$6.00 a day rate on the basis of contributions from the state (\$1.50), county (\$1.50), and federal government (\$3.00) for a period of 28 days' hospitalization within a year for one patient.

State Commissioner, Dr. Ellen Winston, asked that any questions, comments, or suggestions which the medical profession might have be brought directly to the state agency for clearance rather than being left entirely with the county welfare departments.

The meeting with Dr. Winston and staff members gave evidence of the many areas of work with medical implications the State Board of Public Welfare has, and revealed the Board's need and desire for our help as doctors in interpreting the public welfare program. I believe the public welfare people are anxious to have our help and cooperation, and I think it is our duty as doctors to cooperate with them in their work with the needy people of our state. Moreover, it also promotes good public relations for the medical profession when doctors cooperate with these established state agencies.

J. STREET BREWER, M.D.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Recent appointments to the staff include: Dr. R. A. Ross as professor and chairman of the Department of Obstetrics and Gynecology; a graduate of the University of Pennsylvania School of Medicine, Dr. Ross has been on the staff of Duke University since 1930.

Dr. Edward C. Curnen, Jr., as professor and chairman of the Department of Pediatrics. A native of Yonkers, New York, Dr. Curnen took his medical work at Harvard Medical School and has been a member of the staff of Yale University since 1946.

Dr. Ernest Wood as professor and chairman of the Department of Radiology; he is a graduate of Duke University and of Harvard Medical School. He comes to the University from Columbia University College of Physicians and Surgeons.

Dr. Thomas W. Farmer as professor of medicine in charge of neurology. Dr. Farmer is a graduate of Harvard, took his A.M. at Duke, and received his M.D. from Harvard in 1941. He has held teaching appointments at Harvard Medical School, Johns Hopkins University, and the Southwestern Medical School.

Dr. R. Beverly Raney as professor of surgery in charge of orthopedic surgery. A native of Raleigh, Dr. Raney received his M.D. degree from Harvard Medical School in 1930. He instructed in surgery at the University of Rochester from 1930 to 1934; since then he has been on the staff at Duke University.

Dr. Louis G. Welt, at present in the Department of Medicine at Yale University, as associate professor of medicine. Dr. Welt received his medical training at Yale.

Dr. Edward C. Frank as associate professor of psychiatry. A graduate of Wayne University School of Medicine, Dr. Frank is consultant to Portal House Outpatient Clinic in Chicago, the Family Service Organization in Louisville, and is adjunct psychiatrist at the Psychosomatic Institute of Michael Reese Hospital, Chicago.

Dr. John T. Sessions, Jr., as assistant professor of medicine. Dr. Sessions graduated from Emory

University School of Medicine and more recently has been a member of the Department of Medicine of Boston University.

Dr. Paul Leslie Bunce, an alumnus of the University of Chicago School of Medicine, as assistant professor of surgery. Dr. Bunce held a teaching appointment at the University of Pennsylvania and since 1950 has held an appointment at the Brady Urological Institute of the Johns Hopkins Hospital.

Dr. Charles A. Bream as assistant professor of radiology. A graduate of Temple University School of Medicine, Dr. Bream comes to the University from the staff of Columbia University College of Physicians and Surgeons.

Dr. David R. Hawkins as instructor in psychiatry. Dr. Hawkins is a graduate of Amherst College and of the University of Rochester School of Medicine, where he has been a Commonwealth Fund Fellow in psychiatry and medicine for the past two years.

* * *

Dr. G. P. Manire and Dr. W. J. Cromartie, of the Department of Bacteriology, have received a grant in the amount of \$18,624 from the Office of Naval Research to support an investigation on the etiology of nonspecific urethritis. Dr. Cromartie also received a grant of \$30,410 for a three year study of the mechanisms of tissue damage in Group A streptococcal infections.

* * *

Members of the staff were invited to the meeting of the First District Medical Society at Nag's Head on August 20. Dr. W. R. Berryhill spoke on the progress in the School and the Hospital. A panel discussion on "Recent Advances in the Management of Cardiovascular Disease" was given by Dr. George Ham, professor of psychiatry, Dr. Richard Peters, assistant professor of surgery, Dr. William L. Fleming, professor of preventive medicine, Dr. R. A. Ross, professor of obstetrics and gynecology, Dr. Louis G. Welt, associate professor of medicine, and Dr. Charles A. Bream, assistant professor of radiology.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Dr. C. C. Carpenter, dean of the medical school, has announced the addition of several faculty members. Dr. John R. Ausband, who has recently completed his residency training in otolaryngology in the North Carolina Baptist Hospital, has joined the faculty as instructor in otolaryngology. He will be associated with Dr. James A. Harrill.

Dr. William H. Boyce has been appointed instructor in urology. Dr. Boyce completed his graduate training in the North Carolina Baptist Hospital, St. Clair's Hospital, New York, New York Hospital, and the University of Virginia Hospital. Dr. Boyce will be associated with Dr. Fred K. Garvey and Dr. Charles M. Norfleet, Jr.

Dr. Fred C. Collier has joined the staff as instructor in pathology. He completed both his undergraduate and medical education at Yale University. He has formerly been associated with the department of pathology of Ohio State University.

Dr. Courtland H. Davis, Jr. has assumed his duties as instructor in neurosurgery. Dr. Davis received his undergraduate education at George Washington University and was awarded the degree of Doctor of Medicine by the University of Virginia. His residency training in neurosurgery was completed at the University of Virginia Hospital and Duke University Hospital. Dr. Davis will be associated with Dr. Eben Alexander, Jr.

Dr. Alanson Hinman has been appointed instructor in pediatrics and associate in psychiatry. Dr. Hinman is a graduate of Johns Hopkins University School of Medicine. He completed his pediatric residency at the Johns Hopkins University Hospital, and served as pediatric fellow in child psychiatry at Stanford University Hospital. Dr. Hinman replaced Dr. John B. Reinhart, who resigned recently to continue his training in child psychiatry.

Dr. Elmer E. Pautler has been appointed to the position of instructor in pathology. Dr. Pautler was educated at the University of Buffalo, having received the degree of Doctor of Medicine from that institution. He has received his graduate training in pathology at Harper Hospital, Detroit, Colorado State Hospital, Medical College of Virginia Hospitals, and the North Carolina Baptist Hospital.

* * *

The following program has been announced for the Bowman Gray Medical Society meeting on August 11, 1952:

1. Furadantin in Infections of the Genitourinary Tract—Charles M. Norfleet, Jr., Parker R. Beamer, and Harry M. Carpenter. Presented by Dr. Carpenter.

2. Chloramphenicol Serum Levels—Manson Meads, M. Rosenbloom, and J. Satterwhite. Presented by Dr. Meads.

3. Pharmacodynamic studies on Regitine (Ciba 7337), a new adrenergic blocking drug—Gwen Roberts, Alfred W. Richardson and Harold D. Green. Presented by Miss Roberts.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Fourteen Duke University medical students left in July for three months work in English hospitals, according to an announcement by Dean W. C. Davison.

North Carolina students making the trip are Richard B. Boren and Edward B. Mabry, Greensboro; Kenneth D. Hall, Durham; Octavius B. Bonner, Jr., High Point; William R. Fowler, Pilot Mountain; and Embree H. Blackard, Gastonia.

* * *

Dr. James V. Warren, president of the American Federation for Clinical Research, has been appointed a professor of medicine at the Duke University Medical School, Dean W. C. Davison announced recently.

"Dr. Warren is an outstanding figure in the field of medicine," Dean Davison said, "and he definitely adds to the stature of the school. He was one of the first to practice clinical physiology, and one of the first to report the use of intravenous catheters for passage into the liver, and also in the diagnosis of congenital heart disease. Author of an important monograph while a medical student, Dr. Warren was an exponent in restimulating interest in the effect of low sodium diets on heart failure."

In addition to his duties at Duke, Dean Davison said, Dr. Warren will serve in helping to develop the medical department of the new Veterans Administration Hospital here.

Formerly a professor of medicine and physiology at Emory University Medical School, he has just received a \$5,250 grant-in-aid from the American Heart Association for research in heart and blood diseases at Duke.

* * *

"The First Twenty Years," a history of the Duke University Schools of Medicine, Nursing and Hospital health services, has just been published. Edited by Dr. W. C. Davison, dean of the Duke Medical School, the history pinpoints the milestones of

the Medical School and the Hospital in medical services, particularly in the South.

* * *

Cesium teletherapy, a cheaper and safer method now being developed for cancer treatment, will be a real shot-in-the-arm to medicine, Dean W. C. Davison of the Duke University Medical School predicted recently. Duke is one of some 30 Southern universities which will sponsor a new \$100,000 research project in the Atomic Energy Commission's Oak Ridge Institute of Nuclear Studies to perfect this method of cancer treatment.

In teletherapy, much like present radium-x-ray treatment, cancerous body tissue is exposed to high intensity rays of radium, cobalt or cesium. These elements kill cancer cells by cutting off their blood supply. Research will begin this month at the Institute of Nuclear Studies.

Dr. Paul M. Gross, vice president of Duke University, is president of the Institute. Dr. Harold W. Lewis, assistant professor of physics, and Dr. Robert J. Reeves, chief radiologist, are Duke representatives to the Institute project.

* * *

Despite medicine's giant steps in the right direction, tuberculosis has not been conquered.

Primarily because of optimistic accounts of the new wonder drugs, the public has the impression that TB can be cured "as simply, cheaply, and efficiently as pneumonia," says Dr. David T. Smith, professor of bacteriology at Duke University Medical School.

"Nothing could be further from the truth," Dr. Smith, who was president last year of the National Tuberculosis Association, warns. "These patients still require long periods of sanatorium treatment."

NORTH CAROLINA ALCOHOLIC REHABILITATION PROGRAM

Twenty-five North Carolina citizens enrolled in the tenth annual Yale Summer School of Alcohol Studies in July on scholarships granted for the third consecutive summer by the North Carolina Alcoholic Rehabilitation Program.

Although only two years old in actual operation, the North Carolina ARP has sent 69 North Carolina citizens to the Yale Summer School during the July months of 1950, 1951, and 1952.

A breakdown of professional groups sent to Yale by the ARP during these summers shows the following distribution: 19 teachers, 15 ministers, 8 health educators, 3 public health nurses, 3 social workers, 3 physicians, 1 Y.W.C.A. director, 1 vocational rehabilitation official, 1 probation counselor, 1 county board of education member, 2 ARP officials, and 12 members of Alcoholics Anonymous.

PIEDMONT PROCTOLOGIC SOCIETY

The annual August meeting of the Piedmont Proctologic Society was held at Savannah Beach, Georgia, on August 23.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

The North Carolina Board of Medical Examiners will meet at the Washington Duke Hotel, Durham, October 13 at 9 a.m. for the purpose of interviewing applicants for licensure by endorsement of credentials.

WINSTON-SALEM MEMORIAL HEART SYMPOSIUM

The Third Annual Memorial Heart Symposium and Clinics will be held in Winston-Salem, North Carolina, on September 25th and 26th, 1952, at the Hotel Robert E. Lee, under the sponsorship of the Heart Association of Winston-Salem and Forsyth County.

The speakers are: Dr. W. Proctor Harvey, Washington, D. C.; Dr. Charles A. Hufnagel, Washington, D. C.; Dr. Howard T. Karsner, Washington, D. C.; Dr. Roy W. Scott, Cleveland, Ohio; Dr. James V. Warren, Durham, North Carolina; Dr. George M. Wheatley, New York, New York; Dr. Robert W. Wilkins, Boston, Massachusetts.

A feature will be a panel discussion between three of the speakers and three leading industrialists on "The Cardiac Patient in Industry and Business."

There will be no registration fee. All physicians, nurses, and health workers are cordially invited.

NORTH CAROLINA HEART ASSOCIATION

New research applications in the cardiovascular and related fields are now being accepted by the American Heart Association for studies to be conducted during the year beginning July, 1953, it was announced by Dr. Louis N. Katz, Chairman of the Association's Scientific Council, and William Muirhead, president of the North Carolina Heart Association.

Applications for Research Fellowships and Established Investigatorships should be submitted by September 15, 1952. Applications for Research Grants-in-Aid may be filed up to December 1, 1952. Information and forms may be obtained from the Medical Director, American Heart Association, 1775 Broadway, New York 19, N. Y. Applications will be reviewed by the Research Committees of the Scientific Council.

Research Fellowships are open to graduates of approved medical and graduate schools who are interested in research and who plan to follow an academic career. Established Investigatorships are open to individuals of proven ability who have the degree of Doctor of Medicine, Doctor of Philosophy, Doctor of Science, or the equivalent, and who are interested in a career in research. Grants-in-aid are available to non-profit institutions for a specified program of research including work in the basic sciences, under the direction of an experienced investigator.

EDGECOMBE-NASH MEDICAL SOCIETY

The Edgcombe-Nash Medical Society held its regular monthly dinner meeting in Rocky Mount on July 9. Dr. Wiley Forbes, professor of pathology at Duke University, discussed the proposed bill (sponsored by the State Medical Society) dealing with changes in the state coroner system.

HALIFAX COUNTY MEDICAL SOCIETY

Dr. James M. Hutcheson of Richmond, Virginia, was speaker at the meeting of the Halifax County Medical Society held in Roanoke Rapids on July 11. His subject was "High Blood Pressure."

NEWS NOTES

Dr. Hilton D. Haines of Rockingham was certified by the American Board of Obstetrics and Gynecology in the June examinations.

* * *

Dr. W. Ralph Deaton, Jr., has announced the

opening of his offices in Greensboro for the practice of general and thoracic surgery.

* * *

Dr. R. A. Matheson has announced the association of Dr. R. M. Jordan in the general practice of medicine at Raeford.

AMERICAN MEDICAL ASSOCIATION

Observations Relating to the Use of Gamma Globulin in Prevention of Paralytic Poliomyelitis

Whether gamma globulin will be effective in the prevention of paralytic poliomyelitis is not now known. On the basis of animal experiments and preliminary study on humans, it is possible that globulin will have value in human poliomyelitis, but serious questions remain to be answered before such a hope can be substantiated. Nevertheless, public dissemination of information on the status and objectives of current studies, incompletely presented or misunderstood has created a serious demand for gamma globulin which cannot be met.

Virtually the entire output at current production rates is required to meet the demand for prevention or modification of the course of measles and infectious hepatitis.

Under the circumstances, it is obvious that the existing limited supply and current production of gamma globulin should be reserved for use in these diseases in which its efficacy has been established.

INTERNATIONAL COLLEGE OF SURGEONS

The seventeenth annual assembly of the United States and Canadian Chapters of the International College of Surgeons will be held in the Conrad Hilton Hotel, Chicago, September 2-5.

The Right Hon. Lord Thomas Horder, G.C.V.O., M.D., F.R.C.P., F.R.C.S., extra physician to Queen Elizabeth, chairman of the Fellowship for Freedom in Medicine, and member of the Council of the British Medical Association, will be the speaker at the Convocation. His subject will be "Freedom in Medicine."

About 700 new fellows will be received into the College at the ceremony, which will be the high point of the Assembly. The Convocation will be held in the Civic Opera House, September 5.

Another outstanding British surgeon, Mr. Arthur Dickson Wright, F.R.C.S., member of the Council of the Royal College of Surgeons, will be the speaker at the annual banquet in the Conrad Hilton, September 4.

Aside from the colorful academic panoply and ritual of the Convocation, the program will bring together 100 or more top American and Canadian surgeons with a score or more of foreign leaders in surgery to present papers in a serious teaching meeting. Several thousand physicians will be in attendance to hear them.

In addition to the scientific sessions, a large series of scientific and technical exhibits, a showing of new surgical motion pictures, and clinics in Chicago hospitals will be presented.

Unusual features of the meeting will be the program of a new section devoted to the basic sciences allied to surgery, and a special program for operating-room nurses, both set for Tuesday, September 2.

The International College of Surgeons was founded in 1935 by Dr. Max Thorek of Chicago to provide a common meeting ground for surgeons all over the world. It now has twenty-seven national chapters and more than 9,000 members. Henry W. Meyerding, M.D., F.A.C.S., F.I.C.S., of Rochester, Minnesota, is president of the United States chapter; William R. Lovelace, M.D., F.I.C.S., Albuquerque, New Mexico, is president elect; and Arnold S. Jackson, M.D., F.A.C.S., F.I.C.S., Madison Wisconsin,

sin, is secretary. Trustees are Karl A. Meyer, M.D., F.A.C.S., F.I.C.S., Chicago, chairman; and Elmer L. Henderson, M.D., F.A.C.S., F.I.C.S., Louisville, Kentucky, Elmer Hess, M.D., F.A.C.S., F.I.C.S., Erie, Pennsylvania, and Oscar B. Nugent, M.D., F.A.C.S., F.I.C.S., Chicago.

AMERICAN COLLEGE OF SURGEONS

The Forum on Fundamental Surgical Problems, one of the most important features of the Thirty-eighth Clinical Congress of the American College of Surgeons to be held in New York City September 22 through 26, will again be a focus of national attention because of its consistent record of encouraging new ideas leading to advances in surgery. Each year the forum hears papers by younger men whose independent and original research adds to existing knowledge in the field. The forum will begin Monday and continue through Friday, with 15 sessions in all. Dr. Owen H. Wangenstein, professor of surgery, University of Minnesota Medical School, is chairman of the Surgical Forum Committee.

Included are sessions on the stomach; esophagus and intestine; heart and great vessels; heart and blood circulation; wounds and infection; gynecology, obstetrics, and anesthesia; lungs and liver; shock; portal hypertension, liver, pancreas, and blood coagulation; orthopedic surgery; water balance and electrolytes; neurosurgery; urology; plastic surgery, and thermal injuries and cancer.

More than 10,000 surgeons, physicians, and hospital representatives from all over the world are expected to attend this clinical congress, largest scientific meeting of surgeons in the world. Headquarters will be the Waldorf-Astoria.

FEDERAL SECURITY AGENCY

Public Health Service

A competitive examination for appointment of Medical Officers to the Regular Corps of the United States Public Health Service will be held on October 7, 8, and 9, 1952. Examinations will be held at a number of points throughout the United States, located as centrally as possible in relation to the homes of candidates. Applications must be received no later than August 26, 1952.

* * *

Twenty-one grants to aid cancer control projects in hospitals, medical schools, universities and other non-federal institutions in 12 states and the District of Columbia were announced recently by the Public Health Service of the Federal Security Agency.

The grants were made on recommendation of the National Advisory Cancer Council, a group of non-government scientists and leaders in public affairs. They will be administered by the National Cancer Institute of the National Institutes of Health.

VETERANS ADMINISTRATION

Dr. Horace B. Cupp, manager of the Veterans Administration Hospital at Chamblee, Georgia, has been appointed manager of the 491 bed VA hospital at Durham, North Carolina, now under construction, VA announced.

The Durham general medical and surgical hospital is scheduled for completion in November. It will be affiliated with the Duke University School of Medicine.

Dr. Cupp, a medical officer in the Army during World War II, was graduated from the University of Tennessee School of Medicine with an M.D. degree in 1929 and served a year's internship at the St. Louis City Hospital in St. Louis, Missouri. He joined VA in 1930 as a physician in the VA Home at Mountain Home, Tennessee, later advancing to

chief of the surgical service. He was subsequently promoted to Chief Medical Officer at Mountain Home in 1941. Dr. Cupp entered the Army a year later and, when he was released from active duty in 1946 as a colonel, he returned to the same position.

In March, 1947, Dr. Cupp was named manager at the Chamblee, Georgia, hospital.

* * *

Almost 120,000 blind, crippled and tuberculous veterans of all wars and peacetime service will receive increased payments in their compensation checks due September 1, 1952, under Public Law 427 signed by the President June 30, Veterans Administration announced.

VA said the increases are automatic for those veterans who are receiving compensation checks for the disabilities specified by the new law. However, veterans who are not on the compensation rolls and are covered by the new law should apply at their nearest VA Regional Office.

The new law went into effect on August 1, and the increases will be reflected in the checks usually received by the veterans on September 1.

AMERICAN COLLEGE OF CHEST PHYSICIANS

A total of 932 physicians and guests attended the eighteenth annual meeting of the American College of Chest Physicians, held at the Congress Hotel, Chicago, June 5-8, 1952. The roster included members from 44 states, Hawaii, Canada, and 17 other countries.

A scientific program dealing with various aspects of heart and lung disease was presented by leading physicians in the specialty. Many College members remained in Chicago to participate in the program of the Section on Diseases of the Chest of the American Medical Association.

Among the highlights of the meeting were the awarding of the College Medal to Dr. Chevalier Jackson, Philadelphia, for meritorious achievement in the specialty of diseases of the chest, and the presentation of the essay award to Dr. C. Walton Lillehei, Department of Surgery, University of Minnesota Medical School, for his essay "Experimental Bacterial Endocarditis and Proliferative Glomerulonephritis." The award included a prize of \$250.

Officers of the College elected to serve for 1952-53 are: president, Andrew L. Banyai, Milwaukee, Wisconsin; president elect, Alvis E. Greer, Houston, Texas; first vice president, William A. Hudson, Detroit, Michigan; second vice president, James H. Stygal, Indianapolis, Indiana; treasurer, Minas Joannides, Chicago, Illinois; assistant treasurer, Charles K. Petter, Waukegan, Illinois; chairman of the Board of Regents, Donald R. McKay, Buffalo, New York, and historian, Carl C. Aven, Atlanta, Georgia. George Curtis Crump, Asheville, North Carolina, is a member of the Board of Governors.

The nineteenth annual meeting will be held at the Hotel New Yorker, New York City, May 28-31, 1953.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Medical schools are in no immediate danger of losing a significantly large number of their faculty to the armed forces, according to a survey of medical faculty completed recently by the Armed Forces Advisory Committee and the Association of American Medical Colleges.

A report on the survey in the current issue of the *Journal of Medical Education* warns, however, that the draft classification of new faculty members should be considered by the school administrator to help prevent a serious faculty shortage in the event of increased mobilization. Data for the survey was collected in February, 1951.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC.

Appointment of Miss Catherine Bauer as director of information for the National Society for Crippled Children and Adults has been announced by Lawrence J. Linck, executive director.

Former assistant director, Miss Bauer succeeds Mrs. Louise Baker, who has resigned to devote her entire time to writing.

Miss Bauer came to the National Society as assistant director in 1950. She served the Easter Seal Society as consultant in public relations for two years previously as an account executive with the Julian J. Jackson public relations agency in Chicago.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The seventeenth annual meeting of the Mississippi Valley Medical Society will be held at the Jefferson Hotel, St. Louis, October 1, 2, 3, under the presidency of Dr. Daniel L. Sexton, assistant professor of internal medicine, St. Louis University. The meeting will be held during the ninth annual meeting of the American Medical Writers' Association (October 1) at the same hotel.

There will be three full days of scientific meetings, the entire program being especially arranged to appeal to general practitioners. The meeting will include a large technical and scientific exhibit hall, noon round table luncheons, fellowship hour and banquet. All ethical physicians are cordially invited to attend. There are NO registration fees. A detailed program may be obtained from the Secretary, Harold Swanberg, M.D., W.C.U. Building, Quincy, Illinois.

* * *

Wallis L. Craddock, M.A., M.D., chief of medicine, Veterans Administration Hospital, Salt Lake City, Utah, and former assistant chief of medicine, Veterans Administration Hospital, Jefferson Barracks, St. Louis, is the winner of the twelfth Annual Essay Contest, Mississippi Valley Medical Society, "for the best unpublished essay on a subject of practical and applicable value to the general practitioner of medicine." This is the second time Dr. Craddock has won the contest and he becomes the first physician to achieve such an honor.

Dr. Craddock's paper is entitled "Pulmonary Traits of the Systemic Mycoses."

Dr. Craddock will receive a cash award, a gold medal, a certificate of award and will present his essay at the seventeenth annual meeting, Mississippi Valley Medical Society, St. Louis, October 2. His paper will appear in the January, 1953, issue of the Mississippi Valley Medical Journal.

AMERICAN HEARING SOCIETY

Of interest to air travelers who are concerned about the effect of variations in air pressure upon their ears is an article by Norton Canfield, M.D., New Haven, Connecticut, titled "Aerotitis," in the June-July issue of *Hearing News*, publication of the American Hearing Society. Free, single copies of the article in reprint form may be obtained from the society's headquarters, 817 14th St., N. W., Washington 5, D. C.

NATIONAL ASSOCIATION FOR MUSIC THERAPY

The National Association for Music Therapy will hold its third annual meeting in Topeka, Kansas, October 30, 31 and November 1, 1952, in the Hotel Kansan. Applications for active, associate or student membership may be made to Mrs. H. Dierks, 5050 Oak Street, Kansas City 2, Missouri. Members of the medical or musical professions, who are not members may attend meetings by paying a registration fee of \$5.00.

FISKE FUND PRIZE DISSERTATION

The Trustees of the Caleb Fiske Fund of the Rhode Island Medical Society announce the following subject for the prize dissertation of 1952: "The Present Status of Anti-Coagulant Therapy."

For the best dissertation a prize of \$200 is offered. Dissertations must be submitted by December 1, 1952, with a motto thereon, and with it a sealed envelope bearing the same motto inscribed on the outside, with the name and address of the author within. The successful author will also agree to read his paper before the Rhode Island Medical Society at its Annual Meeting on May 7, 1953. Copy must be typewritten, double spaced, and should not exceed 10,000 words. For further information write the Rhode Island Medical Society, 106 Francis Street, Providence 3, R. I.

DEPARTMENT OF THE ARMY

Seven New Permanent Army Hospitals To Be Constructed

Construction of the first of seven new permanent type hospitals planned for Army posts in this country will begin early next year, the Department of the Army has announced. The new buildings will provide capacity for a minimum of 3,200 patients.

The hospitals represent the first step in the Army's program to transfer patients from wooden, cantonment type structures built during World War II to modern multi-story structures, according to Major General George E. Armstrong, MC, the Army Surgeon General.

Hospitals to be constructed at Fort Benning, Georgia; Fort Bragg, North Carolina; Fort Knox, Kentucky; and Fort Riley, Kansas, are for 500 beds on a 1,000 bed chassis.

* * *

First Director of Armed Forces Medical Library Named

The appointment of Lieutenant Colonel Frank B. Rogers, MC, USA, as Director of the recently established Armed Forces Medical Library has been announced by Secretary of the Army Frank Pace, Jr., with the concurrence of the Secretary of Defense. Colonel Rogers has served as the Director of the Army Medical Library, the forerunner of the new institution, since October 1949.

The Armed Forces Medical Library is the largest institution of its kind in the world. It will serve as a central medical library for the Army, Navy, and Air Force and as a national library for medicine and related sciences. The library's extensive facilities will also be available to medical research and development contractors, other governmental agencies, and civilian physicians and medical scientists of all countries.

Classified Advertisements

FOR DISPOSITION: Doctor's Practice and Equipment. Rent 10-room clinic \$55 per month, Atlanta—Decatur Section. \$12,000 equipment, all under 6 years use:

- 1—X-ray Keleket 100 M.A.
- 1—Stetheron—new
- 1—Diathermy
- 1—Basal Meta-balism
- 1—Photometer Colorimeter
- 1—Heidbrink Anesthesia Unit
- 1—Procto-Vagino-cavity set
- 1—B & L Microscope—new
- 1—Portable Oxygen Cylinder Unit

Interested persons write
Mrs. Elkin Vogt
Lithonia, Georgia

TRANSACTIONS
OF THE
MEDICAL SOCIETY
OF THE STATE OF NORTH CAROLINA

NINETY-EIGHTH ANNUAL SESSION

. . . held at . . .

PINEHURST, NORTH CAROLINA

MAY 5, 6, and 7, 1952

President, J. Street Brewer, M.D., Roseboro
Secretary-Treasurer, Millard D. Hill, M.D., Raleigh
Executive Secretary, James T. Barnes, Raleigh

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EARLY HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM ORGANIZATION TO 1804

Date	Place	President	Vice Presidents	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 17, 1799, or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton James Webb Jas. John Pasteur Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchell Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenburg	James Webb John Sibley
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1952

*Missing Data Not to be Found in Record

Date	Place of Meeting	Number in Attendance	President	Vice Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
1849	Raleigh	25	F. J. Hill		W. H. McKee		25		
1 1850	Raleigh	21	E. Strudwick	F. J. Haywood, C. E. Johnson, J. E. Johnston B. Jones, N. J. Pittman	W. H. McKee	W. G. Hill	38	9	
2 1851	Raleigh	23	E. Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill	46	0	
3 1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman	E. B. Haywood	J. J. W. Tucker	72	12	
4 1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman	W. W. Harris	Daniel Dupree	80	14	
5 1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean	S. S. Satchwell	Daniel Dupree	84	17	
6 1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly	S. S. Satchwell	J. B. Dunn	96	18	
7 1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson	S. S. Satchwell	J. B. Dunn	101	22	
8 1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson	W. G. Thomas	J. B. Dunn	113	16	
9 1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce	W. G. Thomas	J. B. Dunn	172	18	
10 1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard	W. G. Thomas	C. W. Graham			
11 1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach	W. G. Thomas	C. W. Graham	233	18	
12 1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom	W. G. Thomas	C. W. Graham	244	18	
13 1866	Raleigh	20	J. J. Summerell	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones	W. G. Thomas	C. W. Graham			
14 1867	Tarboro	41	W. G. Thomas		S. S. Satchwell	C. W. Graham	288	11	
15 1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H. Baker	Thomas F. Wood	J. W. Jones			
16 1869	Salisbury	36	E. B. Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke	Thomas F. Wood	J. W. Jones			
17 1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Luckey, W. R. Sharpe, R. L. Payne	Thomas F. Wood	J. W. Jones			
18 1871	Raleigh	35	Hugh Kelley	D. N. Patterson, R. C. Pearson, J. B. Seavy, G. L. Kirby	Thomas F. Wood	J. W. Jones			
19 1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom	James McKee	J. W. Jones			
20 1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Charles Duffy, P. T. Jerman	James McKee	H. T. Bahnson			
21 1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight	James McKee	H. T. Bahnson			
22 1875	Wilson	60	J. W. Jones	Walker Debnam, J. A. Gibson, William Little, D. N. Patterson	James McKee	H. T. Bahnson	148	5	
23 1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall	James McKee	H. T. Bahnson	157	4	
24 1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill	James McKee	A. G. Carr	177	4	
25 1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith	L. J. Picot	A. G. Carr	194	6	
26 1879	Greensboro	109	Chas. Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill	L. J. Picot	A. G. Carr	198	6	
27 1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis	L. J. Picot	A. G. Carr	225	6	
28 1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. H. Bellamy	L. J. Picot	A. G. Carr	254	6	
29 1882	Concord	65	Thos. F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald	L. J. Picot	A. G. Carr	297	7	
30 1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead	L. J. Picot	A. G. Carr	310	7	
31 1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long	L. J. Picot	A. G. Carr	348	7	
32 1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr	W. C. Murphy	R. L. Payne, Jr.	424	6	

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1952—Continued

*Missing Data Not to be Found in Record

Date	Place of Meeting	Number in Attendance	President	Vice Presidents	Secretary	Treasurer	Members on Roll	Honorary Members	Honorary Fellows*
1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison	J. M. Baker	R. L. Payne, Jr.	438	7	-----
1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Van Poole, H. B. Ferguson	J. M. Baker	R. L. Payne, Jr.	452	7	-----
1888	Fayetteville	133	T. D. Haigh	W. T. Ennett, J. A. Dunn, T. E. Anderson	J. M. Baker	C. M. Van Poole	306	6	-----
1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long	J. M. Baker	C. M. Van Poole	410	6	-----
1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. D. Booth	J. M. Hays	C. M. Van Poole	414	6	-----
1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly	J. M. Hays	C. M. Van Poole	422	6	-----
1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard	J. M. Hays	C. M. Van Poole	431	6	-----
1893	Raleigh	221	J. W. McNeill	W. C. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill	R. D. Jewett	M. P. Perry	447	5	3
1894	Greensboro	166	W. H. H. Cobb	J. A. Hodges, R. W. Tate, Willis Alston, M. H. Fletcher	R. D. Jewett	M. P. Perry	454	5	3
1895	Goldsboro	-----	J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer	R. D. Jewett	M. P. Perry	436	7	3
1896	Winston-Salem	158	R. L. Payoe	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley	R. D. Jewett	M. P. Perry	452	7	3
1897	Morehead City	103	P. L. Murphy	J. C. Waltoo, A. A. Kent, M. R. Adams, B. L. Long	R. D. Jewett	M. P. Perry	406	6	3
1898	Charlotte	-----	Francis Duffy	E. C. Register, A. T. Cotton, J. H. B. Knight, F. H. Russell	R. D. Jewett	M. P. Perry	437	6	21
1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson	Geo. W. Presley	G. T. Sikes	489	6	16
1900	Tarboro	115	George W. Long	C. M. Van Poole, James M. Parrott, T. B. Williams, W. D. Hilliard	Geo. W. Presley	G. T. Sikes	482	6	21
1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Juliao, D. A. Stanton, E. M. Summerell	Geo. W. Presley	G. T. Sikes	515	5	18
1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott	Geo. W. Presley	G. T. Sikes	546	5	20
1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson	J. Howell Way	G. T. Sikes	530	6	19
1904	Raleigh	320	H. B. Weaver	Joho Hey Williams, Joho C. Rodman, S. F. Pfohl	J. Howell Way	G. T. Sikes	1,033	8	17
1905	Greensboro	361	David T. Tayloe	C. A. Juliao, Joho T. Burrus, I. W. Faison	J. Howell Way	G. T. Sikes	1,175	8	17
1906	Charlotte	406	E. C. Register	L. B. McBrayer, W. H. Cobb, Jr., W. O. Spencer	J. Howell Way	G. T. Sikes	1,234	8	16
1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLaughlin, W. F. Hargrove	David A. Stanton	H. McK. Tucker	888	7	16
1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixoo	David A. Stanton	H. McK. Tucker	998	7	28
1909	Asheville	337	J. F. Highsmith	C. M. Van Poole, D. A. Garrison, D. O. Dees	David A. Stanton	H. McK. Tucker	1,067	7	25
1910	Wrightsville Beach	276	J. A. Burroughs†	E. J. Wood, Joho Q. Myers, L. D. Wharton	David A. Stanton	H. D. Walker	1,080	8	35
1911	Charlotte	412	E. J. Wood	J. V. McGougao, W. E. Warren, L. N. Gleon	David A. Stanton	H. D. Walker	880	8	45
1912	Hendersonville	296	C. M. Van Poole	J. P. Monroe, W. P. Horton, J. G. Murphy	David A. Stanton	H. D. Walker	950	8	44
1913	Morehead City	232	A. A. Kent	F. R. Harris, E. S. Bullock, L. B. Morse	John A. Ferrell	H. D. Walker	1,133	8	40
1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, D. E. Sevier	John A. Ferrell	H. D. Walker	1,228	8	47
1915	Greensboro	443	L. B. McBrayer	J. J. Phillips, C. W. Moseley, S. M. Crowell	Joho A. Ferrell	H. D. Walker	1,221	9	68
1916	Durham	406	M. H. Fletcher	J. L. Nicholson, L. N. Glenn, W. H. Hardison	Benj. K. Hays	W. M. Jones	1,228	10	79
1917	Asheville	280	Charles O'H. Laughinghouse	D. J. Hill, J. L. Spruill, J. H. Shuford	Benj. K. Hays	W. M. Jones	1,271	11	81
1918	Pinehurst	291	I. W. Faison	Wm. deB. MacNider, Jos. B. Greene, Ben F. Royal	Benj. K. Hays	W. M. Jones	1,087	11	81
1919	Pinehurst	335	Cyrus Thompson	J. W. Halford, T. W. Davis, A. McN. Blair	Sec.-Treas. Benj. K. Hays	Acting Sec.-Treas. L. B. McBrayer	1,306	11	100
1920	Charlotte	479	C. V. Reynolds	H. D. Walker, F. Stanley Whitaker, Thos. I. Fox	Benj. K. Hays	L. B. McBrayer	1,497	12	100
1921	Pinehurst	404	T. E. Anderson	C. S. Lawrence, W. H. Ward, J. M. Manniog	Benj. K. Hays	L. B. McBrayer	1,491	12	93
1922	Winston-Salem	507	H. A. Royster	W. T. Parrott, B. C. Nalle, J. R. McCracken	-----	Sec.-Treas. L. B. McBrayer	1,571	12	100
1923	Asheville	356	J. W. Long	F. M. Haes, T. C. Johnson, B. L. Long	-----	L. B. McBrayer	1,592	9	101
1924	Raleigh	525	J. V. McGougao	J. L. Spruill,† Eugene B. Gleon, D. A. Garrison	-----	L. B. McBrayer	1,604	9	106
1925	Pinehurst	550	Albert Anderson	W. L. Dunn, A. E. Bell, K. G. Averitt	-----	L. B. McBrayer	1,657	10	116
1926	Wrightsville Beach	445	Wm. deB. MacNider	J. P. Matheson, W. W. Dawson, H. H. Bass	-----	L. B. McBrayer	1,663	10	107
1927	Durham	653	Joho Q. Myers	J. W. Carroll, A. Y. Linville, C. H. Cocke	-----	L. B. McBrayer	1,691	10	121
1928	Pinehurst	611	Joho T. Burrus	G. H. Maccoo, R. F. Leibach, W. R. Griffio	-----	L. B. McBrayer	1,738	11	143
1929	Greensboro	671	Thurman D. Kitchen	W. L. Dunn,† Asheville, D. T. Tayloe, Jr., Washington, W. D. James, Hamlet	-----	L. B. McBrayer	1,666	11	146
1930	Pinehurst	701	L. A. Crowell	W. B. Murphy, Wm. E. Warren, N. B. Adams	-----	L. B. McBrayer	1,711	11	155

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1952—Continued

Date	Place of Meeting	Number in Attendance	President	President-Elect	Vice Presidents	Sec.-Treas.	Members on 1-1-52	Honorary Members	Honorary
78 1931	Durham.....	714	J. G. Murphy.....	M. L. Stevens.....	C. A. Julian, Greensboro J. W. Davis, Statesville.....	L. B. McBrayer.....	1,600	10	10
79 1932	Winston-Salem.....	740	M. L. Stevens.....	Joo. B. Wright.....	C. W. Banner, Greensboro W. W. Sawyer, Elizabeth City.....	L. B. McBrayer.....	1,559	10	10
80 1933	Raleigh.....	714	Joo. B. Wright.....	I. H. Manniog.....	J. R. McCracken, Waynesville.....	L. B. McBrayer.....	1,363	10	10
81 1934	Pinehurst.....	728	I. H. Manniog.....	P. P. McCain.....	W. G. Suiter, Weldon R. L. Felts, Durham.....	L. B. McBrayer.....	1,563	10	2
82 1935	Pinehurst.....	706	P. P. McCain.....	Paul H. Ringer.....	H. D. Walker, Elizabeth City J. F. McKay, Buie's Creek William Allan, Charlotte.....	L. B. McBrayer.....	1,619	10	2
83 1936	Asheville.....	583	Paul H. Ringer.....	C. F. Strosnider.....	J. K. Pepper, Winston-Salem E. S. Bulluck, Wilmington.....	L. B. McBrayer.....	1,462	10	2
84 1937	Winston-Salem.....	767	C. F. Strosnider.....	Wingate M. Johnson.....	C. A. Woodward, Wilson Joo. F. Brownberger, Fletcher.....	L. B. McBrayer.....	1,503	7	2
85 1938	Pinehurst.....	802	Wingate M. Johnson.....	J. Bureo Sidbury.....	R. B. McKnight, Charlotte J. F. Abel, Waynesville.....	T. W. M. Long.....	1,715	7	2
86 1939	Cruise to Bermuda...	319	J. Bureo Sidbury.....	William Allan.....	C. B. Williams, Elizabeth City M. D. Hill, Raleigh.....	T. W. M. Long.....	1,605	8	3
87 1940	Pinehurst.....	835	William Allan.....	Hubert B. Haywood.....	F. Webb Griffith, Asheville Frank C. Smith, Coarlotte.....	T. W. M. Long.....	1,661	7	3
88 1941	Pinehurst.....	756	Hubert B. Haywood.....	F. Webb Griffith.....	D. W. Holt, Greensboro T. C. Kerns, Durham.....	I. H. Manning.....	1,700	7	3
89 1942	Charlotte.....	710	F. Webb Griffith.....	Donnel B. Cobb.....	Thos. DeL. Sparrow, Charlotte T. L. Carter, Gatesville.....	Roscoe D. McMillan.....	1,837	8	3
90 1943	Raleigh.....	736	Donnell B. Cobb.....	James W. Vernon.....	George S. Coleman, Raleigh Julian Moore, Asheville.....	Roscoe D. McMillan.....	1,919	8	3
91 1944	Pinehurst.....	760	James W. Vernon.....	Paul F. Whitaker.....	Fred C. Hubbard, North Wilkesboro George L. Carrington, Burlington...	Roscoe D. McMillan.....	1,982	8	3
1945	No meeting because of O.D.T. restrictions	-----	Paul F. Whitaker.....	Orcn Moore.....	Wm. H. Smith, Goldsboro Zack D. Owens, Elizabeth City...	Roscoe D. McMillan.....	1,811	7	3
92 1946	Pinehurst.....	889	Orcn Moore.....	-----	Wm. H. Smith, Goldsboro Zack D. Owens, Elizabeth City...	Roscoe D. McMillan.....	1,939	6	3
93 1947	Virginia Beach, Va....	444	Wm. M. Coppridge.....	Frank A. Sharpe.....	G. E. Bell, Wilson J. B. Bullitt, Chapel Hill.....	Roscoe D. McMillan.....	2,191	7	4
94 1948	Pinehurst.....	920	Frank A. Sharpe (2).....	James F. Robertson.....	V. K. Hart, Charlotte J. G. Raby, Tarboro.....	Roscoe D. McMillan.....	2,298	8	4
95 1949	Pinehurst.....	998	James F. Robertson.....	G. Westbrook Murphy.....	Joseph J. Combs, Raleigh Joseph A. Elliott, Charlotte.....	Roscoe D. McMillan.....	2,318	5	4
96 1950	Pinehurst.....	947	G Westbrook Murphy.....	Roscoe D. McMillan.....	Beo F. Royal Joseph A. Elliott.....	Millard D. Hill.....	2,283	5	4
97 1951	Pinehurst.....	938	Roscoe D. McMillan.....	Frederic C. Hubbard.....	Joseph A. Elliott Henderson Irwin.....	Millard D. Hill.....	2,341	5	4
98 1952	Pinehurst.....	969	Frederic C. Hubbard.....	J. Street Brewer.....	Forest M. Houser Arthur Daughtridge.....	Millard D. Hill.....	2,326	5	4

†Died during his term of office; succeeded by E. J. Wood, first vice president. ‡Died during term of office. (1) Died during term of office; succeeded by I. H. Manning.
 (2) Died during term of office; succeeded by James F. Robertson, president-elect.

THE GASTON COUNTY MEDICAL SOCIETY AWARD

By authority of the House of Delegates an award is established by the Gaston County Medical Society for the best presentation of audio-visual material in scientific treatise and will be awarded to the best presentation annually at the Annual Session of the State Society. Competition will be restricted to audio-visual material as provided by the rules. Program Chairmen of the eleven scientific sections should take note of this in the preparation of the 1953 program and in the judging of presentations at the Annual Session in 1953.

STATUS OF MEMBERSHIP BY COUNTIES—Continued

COUNTY	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
Mitchell-Avery 13.	6	5	5																				
Mitchell-Watauga 14.	17	10	9	8																			
Mitchell-Yancey	17	21	21	18	22	21	19	22	21	20	19	17	22	21	21	20	22	23	26	26	28	26	
Montgomery 15.	33	37	35	25	35	39	34	36	32	39	37	38	43	44	45	40	49	55	62	59	56	56	63
Nash 16.	3	4	5	4	8	4	4	4	4	4	3	5	8	8	8	8	8	10	10	12	11	11	3
New Hanover	5	5	8	6	6	5	2	5	4	4	4	4	4	4	4	5	4	4	4	4	4	4	1
Onslow	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Orange 17.																							
Person	17	14	11	12	14	12	11	9		9	11	10	14	13	12	14	16	17	21	16	20	20	26
Pasquotank-Camden-Currituck-Dare	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pasquotank-Camden-Dare 8.	6	6	6	7	7	8	7	7	8	8	9	8	8	9	8	8	6	6	6	6	8	7	9
Perquimans 18.	27	27	20	14	22	26	24	26	30	29	28	25	29	30	31	32	30	31	32	29	31	31	28
Pilot	6	5	7	7	6	6	4	5	5	5	6	6	6	6	7	7	6	7	5	5	5	4	5
Randolph	17	17	14	10	11	13	10	9	11	11	11	12	12	13	14	15	16	16	19	20	20	21	21
Richmond	24	21	22	23	23	27	15	17	16	15	16	16	15	17	17	16	18	19	20	15	15	15	18
Robeson	24	24	21	22	23	25	27	28	34	33	35	35	35	36	38	38	38	40	47	47	45	45	42
Rockingham	35	30	33	24	23	34	30	21	28	28	22	26	34	33	42	42	41	41	49	47	46	44	42
Rowan-Davie	22	21	21	19	20	21	23	23	23	23	24	22	22	22	23	22	20	24	25	24	21	21	25
Rutherford	13	13	14	14	14	14	14	16	16	16	16	18	16	15	16	16	15	15	16	14	15	15	18
Sampson	10	11	11	11	11	11	10	11	11	10	10	10	10	10	10	10	10	12	10	13	13	13	14
Scotland	16	15	13	12	16	17	18	19	18	20	16	17	20	20	17	16	18	21	25	22	22	22	21
Stanly-Montgomery	2	6	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Stokes	20	13	17	12	25	22	17	15	14	12	18	16	19	23	27	27	29	31	32	29	29	29	23
Surry-Yadkin	2	2	1	3	2	2	2	5	3	3	1	7	8	10	9	9	7	6	6	4	7	8	7
Swain 10.	13	10	9	10	10	11	10	8	11	13	13	14	15	14	14	13	13	14	14	14	15	15	16
Tennessee	12	8	7	8	9	9	8	6	10	10	10	10	12	10	11	12	11	11	12	12	11	11	12
Tyrell 20.	94	87	86	87	89	88	89	95	100	95	94	93	87	98	96	96	92	110	108	114	120	126	114
Union	6	6	6	5	5	6	2	2	2	2	3	2	3	4	5	2	6	6	5	6	6	6	5
Vance	3	3	3	3	5	6	2	2	2	2	2	2	2	3	4	2	2	2	2	2	2	2	2
Wake	38	30	32	22	27	29	27	29	30	31	34	33	35	38	38	37	37	38	38	37	37	37	38
Warren	10	10	10	9	13	10	14	13	14	15	13	16	17	17	17	14	16	17	17	18	18	19	17
Washington-Tyrell 11	28	28	22	21	25	29	31	25	25	24	25	27	27	31	29	27	30	33	33	35	28	28	30
Watauga 21.	4	1	1	1	5	4	1	1	4														
Wayne	1,594	1,600	1,559	1,363	1,563	1,619	1,462	1,503	1,715	1,605	1,661	1,694	1,837	1,919	1,982	1,811	1,939	2,191	2,298	2,318	2,278	2,343	2,326
Wilkes 2.	38	30	32	22	27	29	27	29	30	31	34	33	35	38	38	37	37	38	38	37	37	37	38
Wilkes-Alleghany	10	11	10	9	13	10	14	13	14	15	13	16	17	17	17	14	16	17	17	18	18	19	17
Wilson	28	28	22	21	25	29	31	25	25	24	25	27	27	31	29	27	30	33	33	35	28	28	30
Yadkin 19.	10	4	1	1	5	4	1	1	4														
Yancey	4	1	1	1	5	4	1	1	4														
Totals	1,594	1,600	1,559	1,363	1,563	1,619	1,462	1,503	1,715	1,605	1,661	1,694	1,837	1,919	1,982	1,811	1,939	2,191	2,298	2,318	2,278	2,343	2,326

(1) See Iredell-Alexander. (2) See Wilkes-Alleghany. (3) See Watauga-Ashe and Ashe-Watauga. (4) See Mitchell-Avery. (5) See Pasquotank-Camden-Dare and Pasquotank-Camden-Currituck-Dare. (6) See Alamance-Caswell. (7) See Macon-Clay. (8) See Pasquotank-Camden-Currituck-Dare. (9) See Rowan-Davie. (10) See Jackson-Swain. (11) See Martin-Washington-Tyrell. (12) See Mitchell-Avery, Mitchell-Watauga, and Mitchell-Yadkin. (13) See Avery and Mitchell. (14) See Martin-Washington-Tyrell. (15) See Mitchell-Avery, Mitchell-Watauga, and Mitchell-Yadkin. (16) See Edgecombe-Nash. (17) See Durham-Orange. (18) See Chowan-Perquimans. (19) See Surry-Yadkin. (20) See Washington-Tyrell and Martin-Washington-Tyrell. (21) See Mitchell-Watauga, Watauga-Ashe, and Ashe-Watauga. (22) See Ashe-Watauga.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH FROM ORGANIZATION IN 1877 TO 1951

Name	Address	Appointed by	Term
S. S. Satchwell, M.D., President.....	Rocky Point.....	State Society.....	1877 to 1878
Thomas F. Wood, M.D., Secretary.....	Wilmington.....	State Society.....	1877 to 1878
Joseph Graham, M.D.....	Charlotte.....	State Society.....	1877 to 1878
Charles Duffy, Jr., M.D.....	New Bern.....	State Society.....	1877 to 1878
Peter E. Hines, M.D.....	Raleigh.....	State Society.....	1877 to 1878
George A. Foote, M.D.....	Warrenton.....	State Society.....	1877 to 1878
S. S. Satchwell, M.D., President.....	Rocky Point.....	State Society.....	1878 to 1884
Thomas F. Wood, M.D., Secretary.....	Wilmington.....	State Society.....	1878 to 1884
Charles J. O'Hagan, M.D., President.....	Greenville.....	State Society.....	1878 to 1882
George A. Foote, M.D.....	Warrenton.....	State Society.....	1878 to 1882
Marcellus Whitehead, M.D.....	Salisbury.....	State Society.....	1878 to 1880
R. L. Payne, M.D.....	Lexington.....	State Society.....	1878 to 1880
H. G. Woodfin, M.D.....	Franklin.....	Gov. Z. B. Vance.....	1878 to 1880
A. R. Ledoux, Chemist.....	Chapel Hill.....	Gov. Z. B. Vance.....	1878 to 1880
William Cain, Civil Engineer.....	Charlotte.....	Gov. Z. B. Vance.....	1878 to 1880
R. L. Payne, M.D.....	Lexington.....	State Society.....	1881 to 1887
M. Whitehead, M.D., President.....	Salisbury.....	State Society.....	1881 to 1884
S. H. Lyle, M.D.....	Franklin.....	Gov. T. J. Jarvis.....	1881 to 1883
William Cain, Civil Engineer.....	Charlotte.....	Gov. T. J. Jarvis.....	1881 to 1883
W. G. Simmons, Chemist.....	Wake Forest.....	Gov. T. J. Jarvis.....	1881 to 1883
J. W. Jones, M.D., President.....	Wake Forest.....	State Society.....	1883 to 1889
John McDonald, M.D.....	Washington.....	State Society.....	1883 to 1889
S. H. Lyle, M.D.....	Franklin.....	Gov. T. J. Jarvis.....	1883 to 1885
W. G. Simmons, Chemist.....	Wake Forest.....	Gov. T. J. Jarvis.....	1883 to 1885
Arthur Winslow, Civil Engineer.....	Raleigh.....	Gov. T. J. Jarvis.....	1884 to 1886
R. H. Lewis, M.D.....	Raleigh.....	State Board of Health.....	1884 to 1886
Thomas F. Wood, M.D., Secretary.....	Wilmington.....	State Society.....	1885 to 1887
William D. Hilliard, M.D.....	Asheville.....	State Society.....	1885 to 1891
Arthur Winslow, Civil Engineer.....	Raleigh.....	Gov. A. M. Scales.....	1885 to 1891
W. G. Simmons, Chemist.....	Wake Forest.....	Gov. A. M. Scales.....	1885 to 1887
J. H. Tucker, M.D.....	Henderson.....	Gov. A. M. Scales.....	1885 to 1887
R. H. Lewis, M.D., Secretary.....	Raleigh.....	State Society.....	1887 to 1888
H. T. Bahnson, M.D., President.....	Winston.....	State Society.....	1887 to 1888
Arthur Winslow, Civil Engineer.....	Raleigh.....	Gov. A. M. Scales.....	1887 to 1889
W. G. Simmons, Chemist.....	Wake Forest.....	Gov. A. M. Scales.....	1887 to 1889
J. H. Tucker, M.D.....	Henderson.....	Gov. A. M. Scales.....	1888 to 1891
J. L. Ludlow, Civil Engineer.....	Winston.....	Gov. A. M. Scales.....	1888 to 1891
J. H. Tucker, M.D.....	Henderson.....	Gov. D. G. Fowle.....	1888 to 1891
F. P. Venable, Ph.D., Chemist.....	Chapel Hill.....	Gov. D. G. Fowle.....	1889 to 1893
J. L. Ludlow, Civil Engineer.....	Winston.....	Gov. D. G. Fowle.....	1889 to 1892
J. A. Hodges, M.D.....	Fayetteville.....	State Society.....	1889 to 1893
J. M. Baker, M.D.....	Tarboro.....	State Society.....	1891 to 1893
J. H. Tucker, M.D.....	Henderson.....	Gov. T. M. Holt.....	1891 to 1893
F. P. Venable, Ph.D., Chemist.....	Chapel Hill.....	Gov. T. M. Holt.....	1891 to 1892
J. L. Ludlow, Civil Engineer.....	Winston.....	Gov. T. M. Holt.....	1892 to 1897
Thomas F. Wood, M.D., Secretary†.....	Wilmington.....	State Society.....	1891 to 1895
George G. Thomas, M.D., President.....	Wilmington.....	State Board of Health.....	1892 to 1895
S. Westray Battle, M.D.....	Asheville.....	State Society.....	1893 to 1895
W. H. Harrell, M.D.....	Williamston.....	State Society.....	1893 to 1895
John Whitehead, M.D.....	Salisbury.....	State Board of Health.....	1893 to 1895
W. H. G. Lucas.....	White Hall.....	Gov. Elias Carr.....	1893 to 1895
F. P. Venable, Ph.D., Chemist.....	Chapel Hill.....	Gov. Elias Carr.....	1893 to 1895
John C. Chase, Civil Engineer.....	Wilmington.....	Gov. Elias Carr.....	1894 to 1897
R. H. Lewis, M.D., Secretary.....	Raleigh.....	Gov. Elias Carr.....	1895 to 1897
W. P. Beall, M.D.....	Greensboro.....	Gov. Elias Carr.....	1895 to 1897
W. J. Lumsden, M.D.....	Elizabeth City.....	Gov. Elias Carr.....	1895 to 1897
John Whitehead, M.D.....	Salisbury.....	State Society.....	1895 to 1897
W. H. Harrell, M.D.....	Williamston.....	State Society.....	1895 to 1897
W. P. Beall, M.D.....	Greensboro.....	Gov. Elias Carr.....	1895 to 1897
R. H. Lewis, M.D., Secretary.....	Raleigh.....	Gov. Elias Carr.....	1897 to 1899
F. P. Venable, Ph.D., Chemist.....	Chapel Hill.....	Gov. Elias Carr.....	1897 to 1899
John C. Chase, Civil Engineer.....	Wilmington.....	Gov. Elias Carr.....	1897 to 1899
Charles J. O'Hagan, M.D.....	Greenville.....	Gov. D. L. Russell.....	1897 to 1899
John D. Spicer, M.D.....	Goldshoro.....	Gov. D. L. Russell.....	1897 to 1899
J. L. Nicholson, M.D.....	Richlands.....	Gov. D. L. Russell.....	1899 to 1901
R. H. Lewis, M.D., Secretary.....	Raleigh.....	Gov. D. L. Russell.....	1899 to 1901
A. W. Shaffer, Civil Engineer.....	Raleigh.....	Gov. D. L. Russell.....	1899 to 1901
Charles J. O'Hagan, M.D.....	Greenville.....	Gov. D. L. Russell.....	1899 to 1901
J. L. Nicholson, M.D.....	Richlands.....	Gov. D. L. Russell.....	1899 to 1901
Albert Anderson, M.D.....	Wilson.....	Gov. D. L. Russell.....	1899 to 1901
George G. Thomas, M.D., President.....	Wilmington.....	State Society.....	1899 to 1901

† Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

Name	Address	Appointed by	Term
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1901
H. H. Dodson, M.D.	Milton	State Society	1901 to 1907
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1907 to 1913
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M.D.	Charlotte	Gov. R. B. Glenn	1907 to 1909
David T. Tayloe, M.D.	Washington	State Society	1907 to 1913
James A. Burroughs, M.D. ¹	Asheville	State Society	1909 to 1913
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1913 to 1919
R. H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1915
A. A. Kent, M.D. ²	Lenoir	State Society	1913 to 1919
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1915 to 1921
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1917 to 1923
J. Howell Way, M.D., President	Waynesville	Gov. T. W. Bickett	1917 to 1923
E. C. Register, M.D. ¹	Charlotte	Gov. T. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1919 to 1923
Fletcher R. Harris, M.D. ³	Henderson	State Society	1919 to 1923
A. J. Crowell, M.D.	Charlotte	Gov. T. W. Bickett	1921 to 1923
Chas. E. Waddell, C.E. ⁴	Asheville	Gov. C. Morrison	1919 to 1925
Cyrus Thompson, M.D.	Jacksonville	State Society	1919 to 1925
R. H. Lewis, M.D.	Raleigh	Gov. T. W. Bickett	1923 to 1925
E. J. Tucker, D.D.S.	Roxboro	Gov. T. W. Bickett	1923 to 1929
J. Howell Way, M.D., President	Waynesville	Gov. C. Morrison	1923 to 1929
A. J. Crowell, M.D.	Charlotte	Gov. C. Morrison	1923 to 1927
James P. Stowe, Ph.G.	Charlotte	Gov. C. Morrison	1923 to 1925
D. A. Stanton, M.D.	High Point	State Board of Health	1923 to 1929
Thomas E. Anderson, M.D.	Statesville	State Society	1923 to 1926
Charles O'H. Laughinghouse, M.D. ⁵	Greenville	State Society	1925 to 1931
Cyrus Thompson, M.D. ¹	Jacksonville	State Society	1925 to 1931
D. A. Stanton, M.D.	High Point	State Society	1925 to 1931
R. H. Lewis, M.D. ¹	Raleigh	Gov. A. W. McLean	1926 to 1931
Jno. B. Wright, M.D. ⁶	Raleigh	Gov. A. W. McLean	1925 to 1931
E. J. Tucker, D.D.S. ⁶	Roxboro	Gov. A. W. McLean	1926 to 1927
W. S. Rankin, M.D. ⁴	Charlotte	State Board of Health	1927 to 1929
L. E. McDaniel, M.D.	Jackson	State Board of Health	1927 to 1929
Chas C. Orr, M.D.	Asheville	Gov. A. W. McLean	1929 to 1935
Thomas E. Anderson, M.D. ⁶	Statesville	State Society	1929 to 1935
L. E. McDaniel, M.D. ⁶	Jackson	State Society	1927 to 1933
James P. Stowe, Ph.G. ⁶	Charlotte	Gov. A. W. McLean	1929 to 1935
A. J. Crowell, M.D. ⁶	Charlotte	Gov. O. Max Gardner	1930 to 1931
J. M. Parrott, M.D. ⁶	Kinston	State Board of Health	1929 to 1935
Chas. C. Orr, M.D. ⁶	Asheville	Gov. O. Max Gardner	1931 to 1935
J. M. Parrott, M.D. ⁶	Kinston	State Society	1931 to 1935
C. V. Reynolds, M.D.	Asheville	State Society	1931 to 1933
L. B. Evans, M.D.	Windsor	State Society	1931 to 1933
S. D. Craig, M.D.	Winston-Salem	State Society	1931 to 1933
John T. Burrus, M.D.	High Point	Gov. O. Max Gardner	1931 to 1933
J. N. Johnson, D.D.S.	Goldsboro	Gov. O. Max Gardner	1931 to 1933
J. A. Goode, Ph.G.	Asheville	Gov. O. Max Gardner	1931 to 1933
H. L. Large, M.D.	Rocky Mount	Gov. O. Max Gardner	1931 to 1935
H. G. Baity, C.E.	Chapel Hill	Gov. O. Max Gardner	1931 to 1935

¹ Died leaving unexpired term.² Resigned to become member of General Assembly.³ Resigned to become Health Officer Vance County.⁴ Resigned.⁵ Resigned to become Secretary of State Board of Health.⁶ Term terminated on account of the reorganization of the State Board of Health by General Assembly.

Name	Address	Appointed by	Term
Grady G. Dixon, M.D. ⁷	Ayden	Ex. Com. State Society	1931 to 1932
Grady G. Dixon, M.D. ⁷	Ayden	State Society	1932 to 1935
S. D. Craig, M.D.	Winston-Salem	State Society	1933 to 1937
W. T. Rainey, M.D.	Fayetteville	State Society	1933 to 1937
J. N. Johnson, D.D.S.	Goldsboro	Gov. J. C. B. Ehringhaus	1933 to 1937
Hubert B. Haywood, M.D.	Raleigh	Gov. J. C. B. Ehringhaus	1933 to 1937
James P. Stowe, Ph.G.	Charlotte	Gov. J. C. B. Ehringhaus	1933 to 1937
Grady G. Dixon, M.D.	Ayden	State Society	1935 to 1939
J. LaBruce Ward, M.D.	Asheville	State Society	1935 to 1939
H. Lee Large, M.D.	Rocky Mount	Gov. J. C. B. Ehringhaus	1935 to 1939
H. G. Baity, C.E.	Chapel Hill	Gov. J. C. B. Ehringhaus	1935 to 1939
J. N. Johnson, D.D.S.	Goldsboro	Gov. Clyde R. Hoey	1937 to 1941
Hubert B. Haywood, M.D.	Raleigh	Gov. Clyde R. Hoey	1937 to 1941
James P. Stowe, Ph.G.	Charlotte	Gov. Clyde R. Hoey	1937 to 1941
S. D. Craig, M.D.	Winston-Salem	State Society	1937 to 1941
W. T. Rainey, M.D.	Fayetteville	State Society	1937 to 1941
Grady G. Dixon, M.D.	Ayden	State Society	1939 to 1943
J. LaBruce Ward, M.D.	Asheville	State Society	1939 to 1943
H. Lee Large, M.D.	Rocky Mount	Gov. Clyde R. Hoey	1939 to 1943
H. G. Baity, Sc.D.	Chapel Hill	Gov. Clyde R. Hoey	1939 to 1943
C. C. Fordham, Jr., Ph.G. ⁸	Greensboro	Gov. Clyde R. Hoey	1940 to 1943
S. D. Craig, M.D.	Winston-Salem	State Society	1941 to 1945
W. T. Rainey, M.D.	Fayetteville	State Society	1941 to 1945
Hubert B. Haywood, M.D.	Raleigh	Gov. J. Melville Broughton	1941 to 1945
J. N. Johnson, D.D.S.	Goldsboro	Gov. J. Melville Broughton	1941 to 1945
James O. Nolan, M.D.	Kannapolis	Gov. J. Melville Broughton	1941 to 1945
Grady G. Dixon, M.D.	Ayden	State Society	1943 to 1947
J. LaBruce Ward, M.D.	Asheville	State Society	1943 to 1947
H. Lee Large, M.D.	Rocky Mount	Gov. J. Melville Broughton	1943 to 1947
Larry I. Moore, Jr.	Wilson	Gov. J. Melville Broughton	1943 to 1947
S. D. Craig, M.D., Pres.	Winston-Salem	State Society	1945 to 1949
W. T. Rainey, M.D.	Fayetteville	State Society	1945 to 1949
Hubert B. Haywood, M.D.	Raleigh	Gov. R. Gregg Cherry	1945 to 1949
James O. Nolan, M.D.	Kannapolis	Gov. R. Gregg Cherry	1945 to 1949
Paul Jones, D.D.S. ⁹	Farmville	Gov. R. Gregg Cherry	1946 to 1949
Jasper C. Jackson, Ph.G. ¹⁰	Lumberton	Gov. R. Gregg Cherry	1945 to 1947
Grady G. Dixon, M.D., Pres.	Ayden	State Society	1947 to 1951
H. Lee Large, M.D.	Rocky Mount	Gov. R. Gregg Cherry	1947 to 1951
J. LaBruce Ward, M.D.	Asheville	State Society	1947 to 1951
Hubert B. Haywood, M.D.	Raleigh	Gov. W. Kerr Scott	1949 to 1953
Mrs. James B. Hunt	Lucama	Gov. W. Kerr Scott	1949 to 1953
A. C. Current, D.D.S.	Gastonia	Gov. W. Kerr Scott	1949 to 1953
John R. Bender, M.D.	Winston-Salem	State Society	1949 to 1953
Benjamin J. Lawrence, M.D.	Raleigh	State Society	1949 to 1953
G. Grady Dixon, M.D.	Ayden	Medical Society	1951 to 1955
George Curtis Crump, M.D.	Asheville	Medical Society	1951 to 1955
H. Lee Large, M.D.	Rocky Mount	Gov. W. Kerr Scott	1951 to 1955
H. C. Lutz, Phg.	Hickory	Gov. W. Kerr Scott	1951 to 1955

⁷ To fill vacancy caused by resignation of Dr. J. M. Parrott.

⁸ To fill vacancy caused by the death of James P. Stowe, Ph.G.

⁹ To fill vacancy caused by resignation of J. N. Johnson, D.D.S.

¹⁰ To fill vacancy caused by resignation of Larry I. Moore, Jr.

ROSTER OF MEMBERS OF THE VARIOUS BOARDS OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

FIRST BOARD

James H. Dickson, Wilmington	1859-1866
Charles E. Johnson, Raleigh	1859-1866
Caleb Winslow, Hertford	1859-1866
Otis F. Manson, Townsville	1859-1866
William H. McKee, Raleigh	1859-1866
Christopher Happoldt, Morganton	1859-1866
J. Graham Tull, New Bern	1859-1866
Samuel T. Iredell, Secretary	1859-1866

SECOND BOARD

N. J. Pittman, Tarboro	1866-1872
E. Burke Haywood, Raleigh	1866-1872
R. H. Winborne, Edenton	1866-1872
S. S. Satchwell, Rocky Point	1866-1872
J. J. Summerell, Salisbury	1866-1872
R. B. Haywood, Raleigh	1866-1872
M. Whitehead, Salisbury	1866-1872
J. F. Shaffner, Salem	1866-1872
William Little, Secretary	1866-1872
Thomas F. Wood, Secretary, Wilmington	1867-1872

THIRD BOARD

Charles J. O'Hagan, Greenville	1872-1878
W. A. B. Norcom, Edenton	1872-1878
C. Tate Murphy, Clinton	1872-1878
George A. Foote, Warrenton	1872-1878
J. W. Jones, Tarboro	1872-1878
R. L. Payne, Lexington	1872-1878
Charles Duffy, Jr., Secretary, New Bern	1872-1878

FOURTH BOARD

Peter E. Hines, Raleigh.....	1878-1884
Thomas D. Haigh, Fayetteville.....	1878-1884
George L. Kirby, Goldsboro.....	1878-1884
Thomas F. Wood, Wilmington.....	1878-1884
Joseph Graham, Charlotte.....	1878-1884
Robert I. Hicks, Williamston ¹	1878-1880
Richard H. Lewis, Raleigh ²	1880-1884
Henry T. Bahnson, Secretary, Salem.....	1878-1884

FIFTH BOARD

William R. Wood, Scotland Neck.....	1884-1890
Augustus W. Knox, Raleigh.....	1884-1890
Francis Duffy, New Bern.....	1884-1890
Patrick L. Murphy, Morganton.....	1884-1890
Willis Alston, Littleton.....	1884-1890
J. A. Reagan, Weaverville.....	1884-1890
W. J. H. Bellamy, Secretary, Wilmington.....	1884-1890

SIXTH AND SEVENTH BOARDS³

R. L. Payne, Jr., Lexington.....	1890-1892
George W. Purefoy, Asheville.....	1890-1892
George G. Thomas, Wilmington.....	1890-1894
Robert S. Young, Concord.....	1890-1894
William H. Whitehead, Rocky Mount.....	1890-1896
George W. Long, Graham.....	1890-1896
L. J. Picot, Secretary, Littleton.....	1890-1896
Julian M. Baker, Tarboro.....	1892-1898
H. B. Weaver, Secretary, Asheville.....	1892-1898
J. M. Hays, Greensboro ⁴	1894-1897
Kemp P. Battle, Jr., Raleigh ⁵	1897-1900
Thomas S. Burbank, Wilmington ¹	1894-1898
Richard H. Whitehead, Chapel Hill ⁴	1896-1898
William H. H. Cobb, Goldsboro ⁶	1898-1900
J. Howell Way, Secretary, Waynesville ⁷	1898-1902
David T. Tayloe, Washington.....	1896-1902
Thomas E. Anderson, Sec., Statesville.....	1896-1902
Albert Anderson, Wilson ⁸	1898-1902
Edward C. Register, Charlotte ⁸	1898-1902
Thomas S. McMullan, Hertford ⁸	1900-1902
John C. Walton ⁸	1900-1902

EIGHTH BOARD

A. A. Kent, Lenoir.....	1902-1908
Charles O'H. Laughinghouse, Greenville.....	1902-1908
M. H. Fletcher, Asheville.....	1902-1908
James M. Parrott, Kinston.....	1902-1908
J. T. J. Battle, Greensboro.....	1902-1908
Frank H. Russell, Wilmington.....	1902-1908
George W. Pressly, Secretary, Charlotte ¹	1902-1906
G. T. Sikes, Secretary, Grissom ⁹	1906-1908

NINTH BOARD

Lewis B. McBrayer, Asheville.....	1908-1914
John C. Rodman, Washington.....	1908-1914
William W. McKenzie, Salisbury.....	1908-1914
Henry H. Dodson, Greensboro.....	1908-1914
John Bynum, Winston-Salem.....	1908-1914
J. L. Nicholson, Richlands.....	1908-1914
Benj. K. Hays, Secretary, Oxford.....	1908-1914

¹ Resigned before expiration of term.² Elected for unexpired term of Dr. Hicks.

³ In 1890 the Medical Society of the State of North Carolina adopted the plan of electing members of the Board in such a manner that the terms would expire at different intervals of two years. This practice was followed for twelve years, or until 1902, when the plan was abandoned; an equivalent of two terms of six years each. It is evident that the Society arranged to abandon the policy as early as 1898, as two members were elected for short terms, and two years later two other members were elected for still shorter terms. It is therefore impossible to separate the sixth and seventh Boards, since the membership was overlapping.

⁴ Died before the expiration of his term.⁵ Elected to serve unexpired term of Dr. Hays.⁶ Elected to serve the unexpired term of Dr. Burbank.⁷ Elected to serve the unexpired term of Dr. Whitehead.⁸ Elected for short term expiring in 1902.⁹ Elected to serve the unexpired term of Dr. Pressly.

TENTH BOARD

Isaac M. Taylor, Morganton.....	1914-1920
John Q. Myers, Charlotte.....	1914-1920
Jacob F. Highsmith, Fayetteville.....	1914-1920
Martin L. Stevens, Asheville.....	1914-1920
Charles T. Harper, Wilmington ⁴	1914-1915
Edwin G. Moore, Elm City ¹⁰	1915-1920
John G. Blount, Washington ¹¹	1914-1920
Hubert A. Royster, Secretary, Raleigh.....	1914-1920

ELEVENTH BOARD

Lester A. Crowell, Lincolnton.....	1920-1926
William P. Holt, Duke.....	1920-1926
J. Gerald Murphy, Wilmington.....	1920-1926
Lucius N. Glenn, Gastonia.....	1920-1926
Clarence A. Shore, Raleigh.....	1920-1926
William M. Jones, Greensboro.....	1920-1926
Kemp P. B. Bonner, Sec., Morehead City.....	1920-1926

TWELFTH BOARD

Paul H. Ringer, Asheville.....	1926-1932
W. Houston Moore, Wilmington.....	1926-1932
T. W. M. Long, Roanoke Rapids.....	1926-1932
W. W. Dawson, Grifton ⁴	1926-1930
J. K. Pepper, Winston-Salem.....	1926-1932
Foy Roberson, Durham.....	1926-1932
John W. McConnell, Secretary, Davidson.....	1926-1932
David T. Tayloe, Jr., Washington ¹²	1930-1932

THIRTEENTH BOARD

Ben F. Royal, Morehead City.....	1932-1938
Benj. J. Lawrence, Secretary, Raleigh.....	1932-1938
F. Webb Griffith, Asheville.....	1932-1938
Hamilton W. McKay, Charlotte.....	1932-1938
J. W. Vernon, Morganton.....	1932-1938
W. H. Smith, Goldsboro.....	1932-1938
K. G. Averitt, Cedar Creek ⁴	1932-1936
Roscoe D. McMillan, Red Springs ¹³	1936-1938

FOURTEENTH BOARD

Karl B. Pace, Greenville.....	1938-1944
William M. Coppridge, Durham.....	1938-1944
Frank A. Sharpe, Greensboro.....	1938-1944
Lewis W. Elias, Asheville ⁴	1938-1943
J. Street Brewer, Roseboro.....	1938-1944
W. D. James, Secretary, Hamlet.....	1938-1944
L. A. Crowell, Jr., Lincolnton.....	1938-1944
John LaBruce Ward, Asheville ¹⁴	1943-1944

FIFTEENTH BOARD

C. W. Armstrong, Salisbury.....	1944-1950
M. D. Bonner, Jamestown.....	1944-1950
T. Leslie Lee, Kinston.....	1944-1950
Roy B. McKnight, Charlotte.....	1944-1950
M. A. Pittman, Wilson.....	1944-1950
Ivan M. Procter, Secretary, Raleigh.....	1944-1950
James B. Bullitt, Chapel Hill ¹⁵	1949-1950
Paul F. Whitaker, Kinston ¹⁶	1950

SIXTEENTH BOARD

James P. Rousseau, Winston-Salem.....	1950-1956
Newsom P. Battle, Rocky Mount.....	1950-1956
Clyde R. Hedrick, Lenoir.....	1950-1956
Heyward C. Thompson, Shelby.....	1950-1956
L. Randolph Doffernmyre, Dunn.....	1950-1956
Amos N. Johnson, Garland.....	1950-1956
Joseph J. Combs, Secretary, Raleigh.....	1950-1956

¹⁰ Elected to serve the unexpired term of Dr. Harper.¹¹ Died a few months before the expiration of his term; such a short time that the vacancy was not filled.¹² Elected to serve unexpired term of Dr. W. W. Dawson.¹³ Elected to serve unexpired term of Dr. Averitt.¹⁴ Elected to serve unexpired term of Dr. Elias.¹⁵ Elected to serve unexpired term of Dr. T. Leslie Lee.¹⁶ Elected to serve unexpired term of Dr. Paul G. Parker.

MOORE COUNTY MEDICAL SOCIETY MEDAL

In 1927 the Moore County Medical Society established a fund, the interest from which is used to pay for a medal to be given for the best paper read at the State Society meeting each year. No one is eligible to receive this medal except Fellows of the Medical Society of the State of North Carolina in good standing; no invited guest is allowed to compete.

Each Section Chairman selects a committee of three to decide on the best paper written in their section. The winning papers are then turned over to the State Committee, who select the one to receive the medal. The following Fellows have been awarded this medal:

THE GEORGE MARION COOPER AWARD

The Fellows of the Wake County Medical Society present..... this George Marion Cooper Award established in honor of George Marion Cooper, physician and health benefactor.

This medal is awarded by the Fellows of the Wake County Medical Society as a token of appreciation and esteem in recognition of the eminence of an essay contributing to the knowledge and advancement of the science of medicine in the field of Preventive Medicine, Public Health, or Maternal and Infant Health Care, presented before the Medical Society of the State of North Carolina.

(Refer to page 372 for announcement of Gaston County Award.)

- 1928—Paul Pressly McCain, M.D.....Sanatorium
"The Diagnosis and Significance of Juvenile Tuberculosis"
(From Section on Pediatrics)
- 1929—A. B. Holmes, M.D.....Fairmont
"The Treatment of Uremia"
(From Section on Chemistry, Materia Medica and Therapeutics)
- 1930—C. T. Smith, M.D., and W. Bernard Kinlaw, M.D.....Rocky Mount
"The Clinical Consideration of Anaemia of Pregnancy and of Puerperium"
(From Section on Practice of Medicine)
- 1931—F. C. Smith, M.D.....Charlotte
"Practical Value of Perimetry in Intracranial Conditions; Case Reports" (tumors, vascular disease, toxemia, syphilis and trauma)
(From Section on Eye, Ear, Nose and Throat)
- 1932—Charles I. Allen, M.D.....Wadesboro
"An Improved Splint for Treating Fractures of the Lower Extremity Showing Reduction and Skeletal Distraction Attachments"
(From Section on Surgery)
- 1933—H. L. Sloan, M.D.....Charlotte
"Some General Remarks about Cataract Surgery, With Report of 100 Consecutive Uncomplicated Cataract Operations"
(From Section on Ophthalmology and Otolaryngology)
- J. R. Adams, M.D.....Charlotte
"Hypo-glycaemia in Children"
(From Section on Pediatrics)
- 1934—Fred E. Motley, M.D.....Charlotte
"Complications of Mastoiditis with Special Reference to Septicemia"
(From Section on Ophthalmology and Otolaryngology)
- 1935—Arthur H. London, M.D.....Durham
"The Composition of an Average Pediatrics Practice"
(From Section on Pediatrics)
- 1936—V. K. Hart, M.D.....Charlotte
"Etiological and Therapeutic Aspects of Bronchiectasis with Clinical Observations on Bronchial Lavage by the Stitt Method"
(From Section on Ophthalmology and Otolaryngology)
- 1937—No award made.
- 1938—O. Hunter Jones, M.D.....Charlotte
"Pelvic Architecture and Classification with its Practical Application"
(From Section on Gynecology and Obstetrics)
- 1939—Donnell B. Cobb, M.D.....Goldsboro
"Vaginal Ureterolithotomy"
(From Section on Surgery)
- 1940—C. R. Monroe, M.D., C. D. Thomas, M.D., and C. L. Gray, M.D.....Pinehurst
"Thoracoplasty and Apicolysis"
(From Section on Surgery)
- 1941—Walter R. Johnson, M.D.....Asheville
"Is Diverticulitis of the Colon a Surgical Disease?"
(From Section on Practice of Medicine)
- 1942—E. P. Alyea, M.D.....Durham
"Castration for Carcinoma of the Prostate Gland"
(From Section on Surgery)
- 1943—No award made.
- 1944—D. F. Milam, M.D.....Chapel Hill
"Vitamin C Content of Some North Carolina Cooked Foods"
(From Section on Public Health and Education)
- 1945—No Meeting.
- 1946—E. C. Hamblen, MD.....Durham
"Some Aspects of Sex Endocrinology in General Practice"
(From Section on General Practice of Medicine and Surgery)
- 1947—W. L. Thomas, M.D.....Durham
"Some psychosomatic Problems in Gynecology"
(From Section on Gynecology and Obstetrics)
- 1948—Felda Hightower, M.D.....Winston-Salem
"The Control of Electrolyte and Water Balance in Surgical Patients"
(From Section on Surgery)
- 1949—George J. Baylin, M.D.....Durham
"The Roentgen Aspect of Non-Opaque Pulmonary Foreign Bodies"
(From Section on Radiology)
- 1950—Parker R. Beamer, M.D.....Winston-Salem
"Studies on Experimental Leptospirosis"
(From Section on Pathology)
- 1951—John P. U. McLeod, M.D.....Marshville
(Moore County Award)
"A Simplified Modification for Staining of the Vaginal Smear for Immediate Appraisal of Endocrine Activity"
(From Section on Gynecology and Obstetrics)
- 1951—Donald L. Whitener, M.D.....Winston-Salem
(George Marion Cooper Award)
"The Management of Labor and Delivery in the Interest of the Premature Infant"
(From Section on Gynecology and Obstetrics)

EXECUTIVE COUNCIL MEETINGS

SUNDAY MORNING SESSION

May 4, 1952

The meeting of the Executive Council of the Medical Society of the State of North Carolina, held at the Hotel Carolina, Pinehurst, North Carolina, was called to order at eleven o'clock by Dr. Frederic C. Hubbard, President of the Society, and the following were present.

Members of the Council

Frederic C. Hubbard, President, North Wilkesboro
J. Street Brewer, President-Elect, Roseboro
Forest M. Houser, First Vice President, Cherryville
Arthur L. Daughtridge, Second Vice President, Rocky Mount

Millard D. Hill, Secretary, Raleigh
Zack D. Owens, Councilor, Elizabeth City
Ernest W. Furgurson, Vice Councilor, Plymouth
Donald B. Koonce, Councilor, Wilmington
Bahnon Weathers, Councilor, Roanoke Rapids
Hugh A. McAllister, Councilor, Lumberton
Francis Bowles, Vice Councilor, Durham
Lester A. Crowell, Jr., Councilor, Lincolnton
James H. McNeill, Councilor, North Wilkesboro
Irving E. Shafer, Councilor, Salisbury
William A. Sams, Councilor, Marshall
Roscoe D. McMillan, Speaker of House of Delegates, Red Springs

James T. Barnes, Executive Secretary, Raleigh
Non-Voting Official Affiliate Council Members
Dr. J. W. Roy Norton, State Board of Health, Raleigh

Dr. J. J. Combs, Board of Medical Examiners, Raleigh

Other Guests

Dr. V. M. Hicks, Raleigh
Mr. John Anderson, Raleigh
Mr. William N. Hilliard, Raleigh

President Hubbard: We will now have the minutes of the previous meeting, (January 27 and February 3).

Dr. McNeill: Mr. President, I move you that we pass the reading of the minutes of the Executive Council.

[The motion was seconded by Dr. W. A. Sams.]

President Hubbard: It has been moved and seconded that the reading of the minutes of the previous meetings be laid aside. All in favor let it be known by saying "aye"; opposed, "no." So ordered.

The next item on the agenda is the report from the Committee assigned to the Board of Medical Examiners to recommend revision of the North Carolina Medical Practice Act.

Dr. V. M. Hicks: Mr. President, Dr. Combs, who is Secretary of the State Board of Medical Examiners, requested the President to start discussions for an increase in fees for examinations by the Board. Basically, this was brought about by the fact that the Board has been, in the last few years, running a deficit.

You are familiar with the fact that the State Board of Medical Examiners not only has the function of examining applicants, but also the duty of investigating and prosecuting those who are violating the Medical Practice Act, all of which requires considerable moneys. In the last two or three years it has been necessary for the State Medical Society to supply the Board with funds in order to carry on this part of their work.

The present schedule of fees began in 1913, and this just happens to be one of the situations where the fees have not kept up with the cost of operation. In addition, the Board wishes to do more investigating against charlatans.

The Committee recommends this schedule of fees:

Licensure by endorsement of credentials or reciprocity, \$100.

Licensure by written examination, \$50.

Limited license, \$50.

Limited license to practice medicine as a hospital resident, \$10.

Duplicate license, \$10.

Mr. President, I will be glad to answer any questions that I can, but our Committee recommends that this Executive Council adopt this schedule.

Dr. Sams: Mr. President, I am pretty much in accord and I think we ought to have no hesitancy about it. I therefore move you, sir, that we adopt this report of Dr. Hicks' Committee and carry it to the House of Delegates as recommended by the Executive Council, to be sent on to the Legislature for such procedure as is necessary to make it law.

Dr. McNeill: I second the motion.

President Hubbard: All in favor of the motion let it be known by saying "aye"; opposed, "no." The "ayes" have it.

Dr. Brewer: Mr. Chairman, while we are on the State Board, I would like to raise the question of some men who take the North Carolina Board, go on to some other states, come back here in ten, fifteen, twenty-five, thirty years, and set up in the practice of medicine in North Carolina. I was wondering if we couldn't make some provision whereby a man who is licensed in North Carolina and goes away for a certain number of years and then comes in, should have to have his license endorsed or something by the Board before he can practice here.

Dr. Sams: Mr. President, I am going to make a motion that the President appoint a committee to work and think some more about this and joined some way with the Legislative Committee and bring back a report.

Dr. McNeill: I second it, with an amendment so that the motion reads that a subcommittee of the Legislative Committee be given that study power and that this committee work in conjunction with the Legislative Committee to bring back a report to the Legislative Committee.

President Hubbard: You accept that amendment?

Dr. Sams: Yes, sir.

President Hubbard: All in favor of this motion let it be known by saying "aye"; opposed, "no." The "ayes" have it.

A letter dated March 27, 1952, addressed to President Hubbard, by Dr. William F. Eckbert, Secretary of the Gaston County Medical Society: "Re: H. A. Kesterson, Naturopathic Physician, Gastonia, N. C.," was read.

Dr. Combs: Mr. President, the Board of Examiners have discussed that case this morning. Our routine, then, is to have the FBI make an investigation. If they have this data, we would be very glad to turn that over to the Attorney General, which is our usual procedure, and he instructs the solicitor; but Mr. Anderson was just telling me that if they have evidence that any law in North Carolina has been violated, they can see the solicitor themselves. It doesn't have to come through the Board of Medical Examiners. We are just in a position to try to help out with any request that comes in to us.

President Hubbard: We will see that this discussion and the comments are sent on to the County Society.

I am going to alter the usual routine and ask for consideration of a resolution on V.A. Hospital Policy whereby non-service-connected veterans holding insurance certificates apply for benefits remittable to the V.A. in competition.

Dr. McNeill: Your Committee has had a couple of meetings. I would like very much to read to you the resolution which we passed:

"WHEREAS, V.A. Hospitals in North Carolina have established a definite public policy of accepting non-service-connected disability cases among the veterans, and

"WHEREAS, Such practice places the government-controlled and subsidized hospitals and doctors in competition with the private hospitals and practitioners.

"RESOLVED, That this Committee strongly favors the continuation of the policy of admitting all service-connected disability and charity non-service-connected disability cases properly certified by local welfare agencies to Veterans' Administration Hospitals.

"BE IT FURTHER RESOLVED, That the Committee disapproves of insurance benefits under any policy being paid to Veterans Hospitals."

It is further resolved that a copy of this resolution be sent to various sources—A.M.A., other medical societies—in order to get the House of Delegates to express its wishes to our delegates to the A.M.A. as to how this Veterans' Administration problem should be handled.

The reason it is important is that Dr. Shoulders in Tennessee has advanced a plan which advocates that men who are financially unable to pay their own way in private hospitals should be given care in their own home town, in their own hospitals, the pay to be derived from hospitalization policies which the United States Government would buy. Your Committee has recommended that our delegates be instructed to try to get our resolution favored in the next meeting of the House of Delegates of the American Medical Association rather than the Tennessee plan.

Dr. Daughtridge: I move that the Committee's report be adopted and that the delegates be instructed to take what action they can at the A.M.A. meeting.

Dr. Shafer: I second the motion.

President Hubbard: All those in favor say "aye"; opposed, "no." The "ayes" have it.

President Hubbard: Next, gentlemen, we have the consideration here of a matter of very great import to the Society, and that is the reappointment of the Executive Secretary for a three-year term expiring May 1955.

Dr. Hill: Mr. President, I would like to rise to say that I would like to see Mr. Barnes reappointed for three years, and if the Chair will entertain a motion from me, I would like to so move.

Dr. Sams: Mr. President, I want to get on my feet to second that, and to say this: That I went to Raleigh as just an ordinary country boy down there, and the efficiency of that office as I had a chance to work with it while I was in Raleigh is par excellence, and we could never beat this man in this world. I would say it if he were in here, but I still say we had better take him for three years or five years if we can get him. I second that motion and ask for immediate action on that because I think it is expedient that we do it at once.

President Hubbard: I have had some first-hand information on the efficiency of that office, and it is 100 per cent, almost, as far as I can see.

Dr. McNeill: May I have an amendment again, and in addition to the appointment, that he be commended for the excellent work he has done in the past.

Dr. Hill: I will accept that amendment.

President Hubbard: All in favor, let it be known by saying "aye"; opposed? So ordered.

Item 6 on the agenda is, consideration of request of Joseph S. Lichty, M.D., for membership in the State Society without benefit of license.

Mr. Barnes: Mr. President, the purpose of Dr. Lichty's presence here is that he is a trained physician, has been licensed to practice medicine in one state, and I believe reciprocated in another. He has

come to North Carolina to do a hospital administrative job in Greensboro, and he has applied for membership in Guilford County Medical Society, and, in turn, in the Medical Society of the State of North Carolina. However, he has not been licensed to practice medicine in the State and he wants to present his cause, which is somewhat in contradiction to the provisions of our Constitution and By-Laws.

Dr. Joseph S. Lichty: Mr. Chairman and Members: Mr. Barnes has reviewed the situation fairly clearly.

I stand now as a full-time hospital administrator, dealing with no one in any way that that person would need a license for his protection, and yet I consider myself actively engaged in my portion of the profession of medicine.

I would be interested first on being able to tell my colleagues I don't have a license, and yet I am active in the medical profession. I have done all I can to join the Society.

Second, there were times in my administrative work when I could see that people in the hospital were trying to push onerous duties off on me which were of a clinical nature which I didn't want to take, and I had a beautiful out by not having a license.

The third thing is, questions may come up many times on the legality of it.

So, to me, the possession of a license has no advantages in my work and I have felt in a few instances it was a definite advantage not to have it.

Dr. Norton: Mr. Chairman, may I comment? Reference was made there to the onerous side of having a license with or without belonging to the Medical Society, and also reference was made to the fact that in Massachusetts, I believe it was, quite a large number of people in public health did not belong to the Society and maybe didn't have a license. I wasn't sure about that.

Dr. Lichty: I am not sure whether they do or not.

Dr. Norton: Here is my interest in it. From the standpoint of public health work, in North Carolina we have some 75 and 100 physicians in the State now. Either last year or the year before last we made arrangements whereby the fees that they would have to pay were reduced. That was taken care of. We scaled those down for certain ones who weren't making very much in their work.

I feel that any M.D. should not consider it an onerous thing or a difficult thing or an objectionable thing to have a license to practice in North Carolina. I shuffle as many papers as he does, and I keep away from the clinical practice of medicine as much as he does, and yet I feel that it is to my advantage in every way, and I feel it would be to his advantage—I am passing my judgment on him—to have a license to practice in North Carolina. I feel that in so far as possible, we ought to make it so that every man who has an M.D. in North Carolina shouldn't consider it onerous, but should consider it a privilege to have a license in North Carolina and to belong to the State Medical Society. If it is a matter of fees, that isn't very much. Most hospital administrators right now are making good money and they can afford it. If it were a matter of not being able to afford it, we have already taken care of that, I think it was two years ago. That is taken care of and I would like not to make exceptions. There might be a few people in public health—and, as I say, there are between 75 and 100—and if we make an exception here, I feel that some of them might want to follow the trend of some of those in Massachusetts, and even though I am not a member of the Executive Council, I appreciate the privilege of meeting with you here and I feel that it would be the wrong thing to do, to go ahead and have some people licensed and some not, as members of the Medical Society.

I want to repeat that I don't consider it onerous for me or for any man in public health or in research or in teaching or any other thing, administrative duties, to have a license; I feel that we ought to consider it a privilege to have a license in North Carolina. He can get a license by reciprocity, I feel sure.

Dr. Lichty: I think I can.

President Hubbard: Gentlemen, I would like to confine this discussion to the regular Executive Session a little bit later. Dr. Lichty asked, however, for a citation here of the law which would be applicable in his case.

Mr. Barnes: Mr. Chairman, Chapter 15 of the Constitution and By-Laws of the State Society, Section 5, reads as follows:

"Each county society shall judge of the qualifications of its own members that as such societies are the portals to this Society and to the American Medical Association, every reputable, legally registered white physician who is practicing or who will agree to practice nonsectarian medicine shall be entitled to membership."

Mr. Barnes: I believe the point is, to be legally registered one must be licensed by the legally established Board for licensure in the State and then have the license registered as required by law in the Clerk of Superior Court's office in the county.

Dr. McMillan: I rise to say that I thoroughly agree. As Chairman of the Committee on Revision of Constitution and By-Laws, we felt that every doctor in North Carolina should have a license before he be accepted into membership in the State Medical Society.

Dr. Sams: I move that the Council decline Dr. Joseph Lichty; he is not eligible.

Dr. Shafer: I second the motion.

President Hubbard: All in favor of the motion let it be known by saying "aye"; opposed, "no." The "ayes" have it.

President Hubbard: The next matter for consideration, gentlemen, is the request of Dr. Alfred A. Kent, Jr., for membership in the State Society without benefit of membership in the component society of his resident county.

Dr. Alfred A. Kent: I have very little more to say than has already been written. The negotiations between me and the County Society have reached practically an end.

My contention is that certain called meetings of the Caldwell County Society were illegal because the membership was not notified, that as Chairman of the Credentials Committee I was not properly allowed to carry out my functions.

At a meeting in August, I considered that I was both shown and told that I was an outsider at that meeting and was not wanted.

Dr. Shafer: After Dr. Kent requested this the first time, in December 1951, I got all the data and turned it over to the Committee on Grievances, of which Dr. McMillan is Secretary. The Committee on Grievances turned it down. Then I got a letter from Dr. Kent saying he would withdraw from the Caldwell County Medical Society, after seventeen years as a member. The Caldwell County Society unanimously recommended that he withdraw his resignation and we let it stand for a while like that. Then Dr. Kent wrote a letter to me again asking me to bring the matter before the Council. I investigated the charges thoroughly. The County Society had had two meetings, at each of which they had a quorum and they were legal meetings and carried out correctly, and I would recommend that Dr. Kent's request be rejected.

Dr. McNeill: I move that this Council accept the recommendation of the Ninth District Councilor. In elaborating on that, we are dealing with a problem here that does not just concern Caldwell County and Dr. Kent. We are dealing with a thing that

involves the whole profession, good public relations and good medical care of our people.

I have this suggestion, that the Councilor call a meeting of the whole county society and explain to them what I have just said, that doctors just cannot function that way. The public will not stand for it and the public will not get adequate medical attention, and the whole profession will be hurt by their action. Doctors have to live together, they have to work together. There is no one man who can take care of all the demands that any one patient may put upon him. He has to have help, so I think you must say that the day of the rugged individualist is over.

So I think that with the view that this man has got to work with his fellow doctors, certainly he should not be permitted to join another county society, and I can wholeheartedly agree with Dr. Shafer's recommendation that we do not approve his membership in the State Society without membership in the County.

Dr. Sams: I desire to second Dr. McNeill's motion, and then to state that according to our Constitution it is impossible to grant his request. If a man is not in good standing in his county medical society it is not possible for him to have standing in the State Medical Society or the American Medical Association.

Dr. Shafer: I will be very glad to work with them, but it does not seem reasonable for a man to have belonged to the Society for seventeen years and then pull out like that, and I think it is mistreating the Caldwell Society to let him resign and go into an adjoining county.

President Hubbard: All in favor of the motion, let it be known by saying "aye"; opposed, "no." The "ayes" have it.

President Hubbard: The next matter on the agenda is to report the appointment of and introduce Mr. William Hilliard as Executive Assistant in Charge of Public Relations. I will ask Mr. Barnes to present Mr. Hilliard.

Mr. Barnes: Mr. Chairman, I am undertaking this rather pleasant responsibility at the request of Dr. Donald Koonce, Chairman of the Committee on Public Relations, who could not be in this meeting this morning.

I do want to say in introducing Mr. Hilliard that he was one among nineteen men whom the Society, through its Headquarters Office and the Committee, surveyed from the standpoint of the possibility of fitting into our program in North Carolina.

It was the unanimous action of the Committee to designate Mr. William Hilliard as the Executive Assistant in Charge of Public Relations, which we are told means that we are both to join as associates in undertaking the vital work which this Society is doing.

I do want to say that Mr. Hilliard is a native of Warren County, North Carolina, that he grew up in Wake County in Cary, North Carolina. He is a small-town boy, he has been in touch with people, he likes people, and he likes to work with people. He was educated at Elon College preliminarily to a service in the United States Navy, and then after at the University of North Carolina, graduating there in 1948, in the School of Journalism, and for the past several years, even before graduation, was identified with Radio Station WPTF. I don't know just the nature of his work, but I will tell you that you have been hearing Bill Hilliard's work for seven years, and I think if he can produce material for WPTF, which is creditable, he will be able to produce work which is creditable to the Medical Society of North Carolina.

I think he is a nice boy and I take a great deal of pleasure in introducing him to you and I look forward with a great deal of pleasure to working with him. Bill, will you come forward and say just a word?

Mr. Hilliard: Thank you. I hope I can live up to the recommendation he gave me.

I don't profess to be any expert in public relations. I have had considerable experience in publicity in both radio and newspaper work. I will give you this promise. I am going to do everything in my power to do the job that needs to be done and I am not afraid of work, as I have expressed to Mr. Barnes.

I do think, and I am firmly convinced, that the program of the Public Relations Secretary and the program of the Executive Secretary have to be very closely integrated. In fact, I think it is the only way you can have a successful program, as well as work it out very closely with your county organizations.

Thank you, sir. [Applause]

[The meeting recessed at twelve-thirty o'clock.]

SUNDAY AFTERNOON SESSION

May 4, 1952

The meeting reconvened at two o'clock, President Hubbard presiding.

President Hubbard: All right, gentlemen, if you will come to order we will begin our proceedings where we left off before lunch.

The next item on the agenda is the consideration of the Legislative Report. We have been looking to Dr. Coppridge for this report. I don't see him in the house. Mr. Barnes, will you present the report?

Mr. Barnes: Gentlemen, this is a report as a result of the meeting of the Committee on January 18, 1952, and I think the point was that there were some important items considered and matters suggested at that meeting in January, and it was felt that it should be reported to this Council before it is reported to the House of Delegates. It is a three-page report, and I will be glad to read it.

Committee on Legislation

(The full report here referred to is shown in transactions of the House of Delegates, May 5, 1952.)

[Dr. John W. Cline, President of the American Medical Association, entered the meeting during the presentation of the previous report, and was greeted by the members of the Council.]

President Hubbard: Gentlemen, what will you do with this report?

Dr. McMillan: I move that the report be accepted and adopted and that the President appoint these section representatives.

Dr. Sams: I second the motion.

President Hubbard: All those in favor of the motion say "aye"; opposed, "no." The "ayes" have it and the motion is carried.

The next item on the agenda is the proposed revision of the annual Roster to include the business telephone number of each member on his name-line.

Mr. Barnes: I have a letter signed by Dr. Eben Alexander, Jr., of The Bowman Gray School of Medicine at Winston-Salem. The letter reads as follows:

"Dear Mr. Barnes:

"I wonder if, when you publish the roster of the Fellows of the Medical Society of the State of North Carolina this year, it would be possible to include as many of the telephone numbers of the doctors as possible. I understand that it is a great convenience as well as saving of expense to the telephone company if long-distance calls are put in by number, and it would certainly save us as individuals a great deal of time if we had these numbers available. I have already begun to keep the numbers in my own roster of physicians, but if this information could be gleaned from the cards that are sent out each year to the physicians, I believe it would be very helpful.

"Sincerely yours,

"EBEN ALEXANDER, JR., M.D."

We will be glad to do it in Headquarters Office if you want us to do it.

Dr. Hill: Mr. President, we have had only one request for this. Our telephone companies in a lot of places are going through changes, opening up new systems, and then there might be errors in setting it up. I am afraid if we went into it, we would be in something that would give us as much difficulty as the problem we now have in getting the telephone numbers.

Dr. McNeill: I note you marked on the agenda that there would be increased cost in doing that. Would that be a very material item?

Mr. Barnes: There is this to be said, that this year we were able, in the county roster section, to primarily use one line across the page. If you get to the point that the information carried on the name-line flows over into the second line, you just about double the pages in the roster, and that, of course, just about doubles the printing costs, and the printing costs now approximate \$1200 a year. I doubt if we will get out for \$1200 this year, and the sale of copies at the present price of \$1.00 (and I think they are certainly worth that) does not nearly meet the cost of printing the roster, so that is a possible increased cost. The more information you put on the name-line, the more it is going to flow over into the second line for each individual, and then you increase your page copy.

Dr. Shafer: I move that it be tabled.

Dr. Sams: I will second that motion.

President Hubbard: All in favor of the motion that it be laid aside, let it be known by saying "aye"; opposed, "no." The "ayes" have it.

Consider proposal that Annual Session be held not in conflict with national meetings, such as College of Physicians (internists), American Neuro-Psychiatric Association.

We have a letter on that from Dr. Harrell, and I would like our Executive Secretary to read it please.

Mr. Barnes: This is a letter signed by Dr. George T. Harrell, of Winston-Salem, dated February 23, 1952, directed to the President:

"Dear Dr. Hubbard:

"I am enclosing a carbon copy of a letter to one of the best young men in Internal Medicine in the South whom we had invited to be guest speaker on the Program of the Section on Medicine for the meeting in Pinehurst in May.

"I have recently had occasion to discuss with the people at Duke and Chapel Hill the difficulty in arranging a program for the first Monday, Tuesday, and Wednesday in May. You may recall that over a period of many years, there have been suggestions that the Medical Society attempt to have a somewhat different date because of the conflict with the Atlantic City meetings. You are familiar. I am sure, with the fact that the Medical School people, not only in Medicine but in Pediatrics, Academic Surgery, and in the Practice of Medicine, have a yearly meeting which has traditionally been set for thirty years on the first Sunday through Wednesday in May in Atlantic City. This year, in order to get two speakers within the State whom we wished to have on the program of the Section on Medicine, it was necessary to arrange a swap with the Section on General Practice so that Medicine could meet on Wednesday afternoon to give the speakers time to come back from Atlantic City.

"Is there any possible way in which arrangements for future years could be made with the hotel in Pinehurst to swap with whatever convention is following ours to arrange to come in earlier so that there will not be this conflict? If you would like additional expressions of opinion, you could get them from Deans Berryhill and Davison, and members of the faculty at either Chapel Hill or Durham. The only time that I recall this problem was worked

out was when the late Dr. William Allen of Charlotte was President of the State Medical Society. He was also a member of the Association of the American Physicians, one of the groups which meet in Atlantic City, so that he arranged for the meetings in the State to come at a different time. I believe, if we could arrange a proper schedule, it would increase the number of people with academic interest who would attend the State meeting. We certainly ought to try to integrate the medical faculties as closely with the work of the practitioners of medicine as we possibly can in order to improve the general quality in Medical Care in the State.

"Cordially,

"GEORGE T. HARRELL, M.D.

"Chairman Section on Practice
of Medicine"

Dr. McNeill: Mr. President, it seems to me that there is mighty little conflict. It is an extremely small group that goes to Atlantic City. It is a large group that comes here. I therefore move that this matter be tabled.

Dr. Shafer: I second that motion.

President Hubbard: All in favor of tabling the matter let it be known by saying "aye"; opposed, "no." The "ayes" have it, and the motion is carried.

[Dr. V. K. Hart, Dr. O. Norris Smith, and Dr. G. Westbrook Murphy were present for the following discussion]:

President Hubbard: The next item on the agenda is consideration of the requests of Hospital Care Association for membership on their Board.

[There was general discussion and it was moved by Dr. McMillan as follows:

RESOLVED, That the Executive Council recommend to the House of Delegates that the invitation and request of Hospital Care that the Medical Society of the State of North Carolina name and appoint four physicians to serve as members of the Board of Directors of Hospital Care Association be declined.

The motion was seconded by Dr. Owens and Dr. Shafer, put to a vote and carried.]

President Hubbard: Gentlemen, the next item is consideration of extending the educational and business programs by means of extending the period of the Annual Session. Dr. Baker will discuss the problem.

Dr. Lenox D. Baker: First, someone asked me to come in and discuss my plan. I have no plan. I forget what Jim came to me with. I think it was about showing some of the audio-visual movies that are put out by the drughouses, and our feeling was that if we showed those and they contained advertising, it might hurt us with the other exhibitors. We got to talking about audio-visual education and it is my opinion it is one of the definite forward steps in the advancement of education.

I have had the experience of setting up the exhibits. I have no plan and I have no talks other than this because I don't know all the trials and tribulations that may come up if we make this change, but this is what I said:

"As a starter, may I suggest consideration of the following alterations of our present schedule: (1) Have Executive Council meeting on Saturday afternoon or Sunday morning; (2) Have the House of Delegates meeting on Sunday afternoon and night, and Monday morning if necessary. Put on Audio-visual Education Program Sunday afternoon, Monday morning and Monday afternoon. In the first place, I believe this will get your members there earlier, we can space our program a bit better, and allow more time for visiting the scientific exhibits, and also the technical exhibits that are so important to the meetings, both from an educational viewpoint and contact, and financing the state meeting. This is just a thought; think it over, and if you want to take it up with your officials for coun-

sel, do so. If there are any major objections, let it ride."

As I go to these national meetings I note they have a terrific audio-visual educational program. The A.M.A. now has fifty films that you can get any time you want.

There is another thing we are doing in the specialty field. Whether it would work in a state meeting, I don't know. We have what we call instructional courses, and then we have symposia. It may be that on Monday afternoon we could have what we call instructional courses and maybe we could have three or four good authorities from within the State or without who would discuss advances in heart disease, advances in the study of the G.I. system; we could vary it each day or we could have a symposium on such a subject, or have three or four instructional courses going on. We put on 70 at the Academy. It takes us a day and a half to do it.

I think we would get more of our members and I think we would give them a little more for which to come. I don't believe the amount of program that a man can attend when he comes to this meeting is what attracts our members to our meeting. I believe they come to see each other and to be here, and to get what they can out of the program. There are people who would like to take in one program when there is another one going on at the same time in which they are interested.

This is just a thought advanced at Mr. Barnes' request. I am not here carrying a torch and I am not here as a crusader and have no desire one way or the other on the matter. I am here because he asked me to be.

Mr. Barnes: There are two or three points I would like to make to begin with. We were faced last September with the request of one of the specialty groups who had found the need for certain business activity in addition to the scientific considerations that this specialty group needed to conduct its affairs at this meeting, and so a resolution was adopted by the Executive Council permitting this one section to conduct a business meeting in conflict with one of the general sessions—at least, to have such a business meeting outside of their scientific section, and they have scheduled it in conflict with a general session meeting.

That is going to happen this year for the first time, I believe, Dr. McMillan, in the history of this Society.

You can imagine the confusion that would result if all the other sections made a similar request, and one other section has made a request this very year to have the privilege of conducting a business session while the general sessions are in operation. We finally minimized the business meeting that they are going to have, and they are going to have it during the lunch hour, and they are going to forego lunch or something in order to get the business done. That is one thing.

Then we do have, of course, the possibility of live clinics that we have never done anything about, which could be just as educational as your scientific sections and it simply could not be done in the short space of Monday when we are pressed here for activity of this body and late Sunday afternoon and then the whole House of Delegates on Monday. So, over all, you are having increasing business come up. For instance, a very important committee met here last night. The Insurance Committee from year to year has had meetings here on Saturday night, and I think there is going to be more and more business that is going to be transacted on Saturday, if we are to get the business of this growing, large Society done.

So, it is just something for you to consider, and whether you did it this year or not, it is something for you to think about and perhaps work on, to the point that we can bring our meeting to a little bet-

ter finesse and not such a drive as to burn everybody up in accomplishing your affairs, and putting on a creditable scientific program.

Dr. McMillan: Mr. President, may I say that Dr. Baker has presented some awfully good educational material and I think the idea is swell. It is a thing that you can't bite off and digest at one meeting. I therefore move that it be referred to the Committee on Arrangements for study and, if possible, adaptation into the program.

Dr. Shafer: I second the motion.

President Hubbard: All in favor of Dr. McMillan's motion let it be known by saying "aye"; opposed, "no." The "ayes" have it.

Gentlemen, we will proceed to the reports of the Committees, Boards and Officers, and follow the order in which these appear in the compilation of annual reports. I will ask the Executive Secretary to proceed.

Mr. Barnes: Gentlemen, I might state that, as custom established, a committee composed of your President, your President-Elect, your Constitutional Secretary and the Executive Secretary has met again this year and reviewed each one of these reports. That means that they have been literally read, word for word, and discussed if there were any points of view or matters pertaining to these individual reports that should have particular pointing up either to this Executive Council or to the House of Delegates.

I can say that Dr. Hubbard and the other members of that group asked me to annotate my copy of this to show those that they approved. I entered "O.K.", or outlined what was significant or what required action.

Dr. Daughtridge: Mr. Chairman, I make a motion that unless there is some annotation by the Executive Secretary, the reports be accepted without comment and passed on to the House.

Dr. McNeill: I second the motion.

President Hubbard: I have asked for discussion. All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it.

I recognize Dr. McMillan on the Constitution and By-Laws.

Dr. McMillan: The revision of the Constitution and By-Laws, you recall, has already been passed by the House of Delegates.

It was ratified last year, but since the ratification by the House of Delegates, there are one or two points in this Constitution that were pointed out to us by our attorney, Mr. Anderson, in which we might be classified as a trade organization, and thereby subject to rather terrific tax; but by making one or two little revisions in this Constitution, we might be eliminated from the category of a trade organization and be classified as a professional organization.

I would like, as Chairman of that Committee, to go ahead with this because it is supposed to lie over for one year — am I correct on this, Mr. Barnes? However, if it is brought up before the Executive Council this afternoon, with recommendation to the House of Delegates tomorrow, and then voted upon by the Society as a whole in General Session—not by the House of Delegates—it would be permissible to change it at this time.

Therefore, I wouldn't want to go ahead without you knowing exactly what I had planned to do. I wonder if you would be willing to accept (I don't want to read all this to you) what the President, President-Elect, Executive Secretary and Secretary have already gone over and approved?

Dr. Sams: I move we accept it.

Dr. Owens: I second the motion.

President Hubbard: All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it.

Dr. Hill: May I at this time remark that we went before the Employment Security Commission, spent

about three days over there, trying to get this tax off. This tax runs between six and seven hundred dollars a year. They say it is not a whole lot, but for a hundred years it will be a whole lot. We have put all of the data in and our Attorney, Mr. Anderson, will argue it before the Commission. We have it under protest and we have got one little clause in our By-Laws that apparently involves us.

President Hubbard: The next item is a request from the Committee on Prepaid Medical Service Insurance Plan for its discontinuance; having served its purpose and gotten the plan floated, they ask for release.

Mr. Barnes: That was stated in the contents of the report, that they requested to be relieved of their responsibility, having completed the job.

It should be pointed out, I believe, Mr. Chairman, that there is a provision in the resolution that you have passed adopting this program that there be a continuing advisory committee, so now whether or not you are going to have to set up machinery for naming that other committee, I don't know, but this is something for you to consider in discharging this particular committee.

That would, of course, be an advisory committee to the Medical Service Plan, which they have reported, and to the agency which is going to administer it, that being the Hospital Saving Association.

Dr. Shafer: I move that the five senior members in service be continued as an advisory committee.

President Hubbard: Is there any further discussion?

Dr. Furgurson: I would like to offer an amendment that we express our deepest gratitude to the Committee for the long hours and arduous work which they have done.

Dr. Owens: I second the motion.

President Hubbard: You have heard the motion and it has been seconded. All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it and the motion is carried.

I am going to recognize John Anderson, our attorney, to discuss a little more fully this matter of seniority on the Insurance Committee, the Advisory Committee which we are appointing.

Mr. Anderson: I asked how you are going to determine which of the six are senior members, and I believe it is possible that more than six are equal in point of service on that Committee. I am just thinking about the new President and the Secretary, when they come to figure out the minutes.

Dr. Crowell: I move the action we took in regard to that matter be changed to read that the Committee be appointed by the President.

Dr. Furgurson: I will second the motion.

President Hubbard: All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it.

We have the same request on the part of the Committee on Heart Disease Control. I recognize Dr. McNeill on that.

Dr. McNeill: Gentlemen, there has been some doubt as to the actual purpose and need for this Committee. We had felt that it was sort of a supervisory committee of the North Carolina Heart Association and a liaison group between the Medical Society and the Heart Association. The Heart Association is functioning nicely. There are enough medical men on its Board to guide it.

Dr. Furgurson: Mr. President, there is only one thing that I think we should consider seriously in discontinuing a committee of this kind of the State Medical Society, and that is the same situation we faced in another group. Although we failed in our effort to pass certain resolutions which the Cancer Committee had deemed important. I believe, at the same time, that it is important for us to have some contact with all these various and sundry organizations through our State Medical Society.

Mr. Barnes: I might say, Mr. Chairman, I believe at the time this Committee was set up, there was some program emanating from the State Board of Health, which they thought might get into the area of cooperation between the practitioner and the Board of Health in actually running the service program. I think that is largely worked out in an educational program rather than a service program and in that sense, one of the original liaison purposes of the Committee, of course, has been obviated.

President Hubbard: It seems like that is a pretty important function, too.

Dr. Norton: We can work with either group, either the State Medical Society through a specific committee, or we can work with the Executive Committee of the Heart Association in this particular instance, and what we do in either case would be to carry it before the Executive Committee. The matter of general policy and plans for program we would bring before the Executive Council of the State Medical Society for information and guidance.

Dr. Owens: I move it be continued. I think it is important.

Dr. Furgurson: I second the motion.

President Hubbard: All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it.

At this point I want to recognize Dr. Hill for a moment. He has a matter to bring to you.

Dr. Hill: I would like to bring this matter before the Executive Council. Of course, it will be in the Auditors' report. I did want to report the financial standing of the Society at this time and I felt you gentlemen ought to know.

We have at this time \$95,300 worth of Government Bonds.

I do feel that you ought to know something about the financial situation of the Society. If you keep expanding the activities, I don't believe the accumulation will be as rapid as it has been over the last three years. It was a little bit slower this year than it has been. Now we are in good financial standing and in giving my report I will attach the auditor's report.

Our accumulation this year was not quite as big as it was last year, because our committees have been spending a little bit more money. We turned loose for our rural health program, about \$10,000 this year, where we have only turned over \$6500 or a little over that; and several other committees have had to have a little more money; and clerical help, whether you know it or not, has had to have a lot more.

President Hubbard: Thank you Dr. Hill, for that report.

Mr. Barnes: Mr. Chairman, I believe we did not consider in the meeting of this group a report of the Medical Advisory Committee to the State Commissioner of Public Welfare, which you appointed very late in the year. I think that Committee had no chairman at all, and, in our meeting, we made some mention of it and Dr. Brewer, who did represent the Society at that meeting, made a very comprehensive report which I have here and which no one has read. I believe this should be put in the record. I just bring it up for his elaboration or for reading or whatever you would have done about it.

Dr. Brewer: I didn't get this thing in because I didn't realize until a few days ago that we were supposed to make a report.

I am not going to read this. Several members of this Committee met with Dr. Winston in her office and reviewed the program of the State Welfare

Board as it relates to the doctors. We found that there are many points in which these programs of the State Board of Public Welfare catch the interests and are dependent upon the skills of men in the medical profession more than one might suppose, and I am going to mention two or three of them.

There is the Program of Aid to the Permanently and Totally Disabled. One thing I want to call attention to in that is this: First of all, regarding aid to people. The State Welfare Board has one thing in view. A person must be in need. The Welfare Board also expects children to take care of their aged parents if they are able to do so. There have been instances of which we have heard in which children tended to put the support of their aged parents off on the welfare programs. Maybe they have gotten by with it, but here is where the help of the doctors comes. The question of whether the applicant is permanently and totally disabled must be determined by competent medical authorities. On the basis of this examination by a local medical doctor, the State Board medical consultant makes his recommendations as to whether or not the applicant qualifies for aid under the law as to mental or physical disability. So, we doctors back home, out in the field, ought to have a rather important place in this setup of aid to the permanently and totally disabled, because it is through this report that Dr. Nelson Thompson, the consultant, bases his judgment as to whether to recommend to the Board that this person is mentally or physically incompetent and unable to take care of himself.

Another thing I want to call attention to is contained in this paragraph:

"One of the problems which the state agency faces is that of the occasional placement of babies by doctors and hospitals. The state laws concerning the care and protection of children are clear on such points as the following: Separation of a baby under six months of age from its mother, the interstate placement of children, and the basic adoption law. All three must be handled by a public welfare agency or a licensed private welfare agency. It is against the law for doctors or hospitals to place children for adoption without the consent and cooperation of a public welfare agency or a licensed private welfare agency."

There is a new program of hospitalization for public assistance recipients. This was begun in 1951, when an appropriation from the Legislature of \$112,500 was earmarked for hospitalization for public assistance recipients under the new Federal program, which is the extension of the Social Security Act. Funds are available on a \$6 a day rate on the basis of contribution from the state of \$1.50, from the county \$1.50, and \$3.00 from the Federal Government for a period of 28 days' hospitalization for one individual within a year.

The Commissioner, Dr. Winston, asked me to state to the doctors that they should feel free to call on her department with any question they may have or any comments or suggestions. If you have any questions regarding the operation of the State Public Welfare Program, she prefers that you take it up directly with her office rather than with your local County Public Welfare Office—that is, any important thing.

I will read the last paragraph: "The discussion the day I met with the group in Dr. Winston's office gave evidence of the many areas of work the State Board of Public Welfare has with medical implications and revealed the Board's need and desire for our help as doctors in interpreting the Public Welfare Program. I believe the Public Welfare people are anxious to have our help and cooperation, and I think it is our duty as doctors to cooperate with

them in their work with the needy people of our State. Moreover, it is not only our duty to do so, but it also promotes good public relations for the medical profession when doctors cooperate with these established state agencies."

President Hubbard: Thank you, sir.

Dr. Sams: Mr. President, I move you, sir, that the report of that Committee be incorporated in our minutes.

Dr. McMillan: I second the motion.

President Hubbard: All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it and the motion is carried.

Is there any new business to come up?

I will recognize Dr. Owens now.

Dr. Owens: I have been asked by Pasquotank-Camden-Currituck-Dare Counties Medical Society and also the First District, as Councilor, to bring to your attention an irregularity on the part of our local district health officer. In so doing, I want to apologize to Dr. Roy Norton and his Department which has done such a fine job. I am going to ask Mr. Barnes to read this article that appears in the paper, and then I will comment further.

Mr. Barnes: This is the Elizabeth City Daily Advance of Tuesday, April 15, 1952, final edition, in which there appears this headline: "District Heart Diagnostic Clinic for School Children Will be Conducted in City."

"A heart diagnostic clinic for school children will be conducted by the district health department with Dr. Selwyn L. Steel of Norfolk conducting the clinic, Dr. B. B. McGuire, district health officer, announced today.

"Dr. McGuire pointed out that this will not be a free clinic since it will be held by a qualified heart specialist but that the rates will be held to a minimum and far below the usual rates. Use of the fluoroscope, nursing service, clerical help and laboratory service will be furnished free by the health department.

"He pointed out that approximately 356 school children in this health district show or have shown at least some indication of heart disease as indicated on the school cards, and that 64 of these children were found by other doctors, and more found by school physicians, whose principal work is physical examination of students. About 90 per cent of these children are in grades one through five, while many others in grades six to twelve have not been examined at all schools and therefore many undiscovered cases probably exist among students.

"Dr. McGuire pointed out that not all these children have heart disease now. Many murmurs are functional and will clear up themselves, but it is only through examination by a well-trained and qualified heart specialist that the true condition of each child can be revealed. Then something can often be done in childhood that will make more certain the fact that the child will live to a ripe old age in comfort, he said.

"Their discovery in the middle and later life uncover the sad story that 'nothing can be done now in the way of correction or removal of the cause' when, in all probability it could have been removed when a child.

"The clinic will not be open to the public, and children to be examined at a certain clinic will be notified by letter or by the nurse in person. Children must be accompanied by a parent. Appointment for school children in grades six to twelve whose parents have good reason to feel that their children have signs of heart disease should first see the school physician who will make a preliminary ex-

amination. Parents should call the health department for such information. All local practicing physicians who desire a cardiological report on their private patients are welcome at the clinic, Dr. McGuire said.

"Dr. Steel is a graduate of Yale University Medical School and his varied training and experience in diseases of the heart include internal medicine and cardiology at Peter Bent Brigham Hospital; thirteen years at Boston City Hospital in cardiology, heart clinic at Lawrence, Mass., and teaching experience on the staff of cardiology at Tufts Medical College for students and graduates."

Dr. Owens: That same article appeared the next day in the Norfolk, Va. Pilot, and also in our News and Observer. It created quite a bit of disturbance and Dr. McGuire was asked to appear before a called meeting of our County Medical Society.

In the first place, I want to state that our County Medical Society, in cooperation with our Superintendent of Public Schools, conduct a pre-school clinic each year and the services of our county physicians are gratis.

In the second place, members of our Society feel that the figure is an exaggeration of the number of cases.

Dr. McGuire was also asked to substantiate, to approve this fellow's qualifications and credentials. He wired these places of reference and his credentials were not substantiated. In fact, they were repudiated.

This fellow is a self-styled heart specialist. Further inquiry of the Norfolk County Medical Society, from the Past President of the Virginia State Medical Society, informed me that he was not considered a heart specialist at all, and he was not held in very high esteem by his fellow members of the Norfolk County Medical Society, whereupon Dr. McGuire was instructed by our County Medical Society that he had better call this off.

Dr. McGuire had not consulted any local board, members of the County Medical Society or District Medical Society at all. He was acting upon his own initiative, and he stated that he felt it was within his jurisdiction and power to do so, to hold this clinic if he so desired. Our Society pointed out to him that this condition was not considered a public menace and did not fall within the realm of his work as County Health Officer. It was entirely a matter for private physicians. We have four recognized internists in our city who are well qualified and they have electrocardiographic operators and they were not consulted at all.

Dr. McGuire stated that he did, to repeat, feel it was within his jurisdiction to do so. He went further and said he thought, too, that he should conduct a clinic or a department for geriatrics. What is that but invasion of the private practice of medicine, gentlemen? And this practice is to be condemned. We bring it before this body for your consideration.

Dr. Sams: Mr. Chairman, I move that we thoroughly endorse the action of the Councilor, Dr. Owens, from this district, and heartily endorse the action of the First District Medical Society; that it be brought to the attention of the State Health Officer, Dr. Roy Norton, for his immediate attention, and to the attention of the Board of Medical Examiners.

Dr. McNeill: I will second that motion.

President Hubbard: All in favor make it known by saying "aye"; opposed, "no." The "ayes" have it.

If there is nothing further to come up, we will stand adjourned.

[The meeting adjourned at four-thirty o'clock.]

MEETINGS OF THE HOUSE OF DELEGATES

MONDAY AFTERNOON SESSION

May 5, 1952

The first meeting of the House of Delegates of the Medical Society of the State of North Carolina, held in conjunction with the 98th Annual Session of the Society, was called to order in the Carolina Hotel, Pinehurst, at two o'clock, by Dr. Frederic C. Hubbard, President of the Society.

President Hubbard: The House will come to order.

I ask Dr. Roscoe McMillan to speak the invocation for us. [Dr. McMillan rendered the invocation.]

President Hubbard: Is Dr. Cline in the house?

[No response.]

Gentlemen, the House of Delegates has a great advantage this year in that we have a speaker of the House to preside. It is with a great deal of pleasure that I present Dr. Roscoe McMillan, Speaker of the House of Delegates, of the Medical Society of the State of North Carolina.

[The Speaker of the House, Dr. Roscoe D. McMillan, took the Chair.]

The Speaker: Gentlemen of the House of Delegates, I consider it an honor to be elected the first Speaker of the House of Delegates to the Medical Society of the State of North Carolina. This is the first time since the organization of this great body back in the year of 1799 that this new procedure is being inaugurated.

Throughout the sessions of the House of Delegates, you will address the Chair as Mr. Speaker, and, as Speaker, I hope to recognize anyone in this audience who wants to speak, ask any questions, and I want you to feel perfectly free and at ease. Only the delegates will have the opportunity to vote.

We will now proceed with the order of business for the afternoon.

First, I would like to call on the Chairman of the Committee on Credentials, Dr. Wingate Johnson.

Dr. Wingate Johnson: They are not through registering yet but we have a quorum, we can assure you.

The Speaker: Thank you, Dr. Johnson.

Inasmuch as we have a quorum, we will now proceed. First is the roll call of accredited delegates. Dr. Hill, secretary, will call the roll.

Dr. Millard D. Hill: Before we start with the roll call, there are a few remarks I would like to make about the delegates to the House. All members of the Executive Council are members of the House of Delegates with power to vote. All Past Presidents are members of the House with power to vote. All Past Secretaries are members of the House with power to vote. The Chairman of the Legislative Committee is a member of the House with power to vote.

Each 25 paid-up members entitles you to one delegate, or a major portion thereof, or one delegate from each county.

[The Secretary, Dr. Hill, called the roll of accredited delegates.]

Dr. Hill: Mr. Speaker, I declare a quorum present.

We have present, in addition, the President of the American Medical Association.

The Speaker: Thank you, Mr. Secretary. I want to interrupt the routine for just a few moments inasmuch as we have a very distinguished visitor in the person of the President of the American Medical Association, Dr. John W. Cline, of San Francisco. I am going to ask Dr. Powell Fox to escort Dr. Cline to the rostrum.

Dr. John W. Cline: Dr. McMillan, Gentlemen: It is a great pleasure for me to be here. I shall inflict myself on you only very briefly inasmuch as I think you will be compelled to listen to me on two other

occasions. But everyone has been so kind, so thoughtful since I have been here that I wish to thank your Society now for the many courtesies which have been extended to me, and I know that I shall continue to enjoy my stay as much as I have the past day. Thank you very much. [Applause.]

The Speaker: We have with us the Secretary of the Board of Medical Examiners. I recognize Dr. Joseph J. Combs, Secretary of the Board.

Dr. Joseph J. Combs: Mr. Chairman, in coming before you as Secretary of the State Board of Medical Examiners, I was particularly interested in a report that is coming from the Executive Council. We have our report in the record. We are working hard. We are enjoying it. There is a recommendation coming from the Executive Council, reported to them by a committee of the Board, and two members from this Society that were appointed by the President.

The Speaker: The Chair will recognize Mr. James T. Barnes, Executive Secretary.

Mr. James T. Barnes: Mr. Chairman: I will read the excerpt from the minutes of the Executive Council.

"The Committee assigned to the Board of Medical Examiners to recommend revision of the North Carolina Medical Practice Act recommended the following schedule of fees:

"1. Licensure by endorsement of credentials or reciprocity—\$100.

"2. Licensure by written examination—\$50.

"3. Limited license—\$50.

"4. Limited license to practice medicine as a hospital resident—\$10.

"5. Duplicate license—\$10.

"It was moved, seconded and carried, that the report be adopted and submitted to the House of Delegates as a recommendation of the Executive Council in its 1952 Annual Session, to be presented to the Legislature for such procedure as is necessary to make this law."

The Speaker: I recognize Dr. Combs.

Dr. Combs: Gentlemen, the fees set in 1913 are still in effect, the expenses of the State Society have gone up, and so have the expenses of the Board of Medical Examiners. We find that we are not getting enough funds to run on, and so this committee recommended to the Executive Council the fees that were agreed on.

If you want some additional information on the income of the Board, I have the information at hand, but as boards go, we are not receiving so much money, but expenses of meetings, hotel expenses, and everything, are going up, and the Board is having a lot more work to do. We are having to consult with the attorneys at all times because of the very difficult problems and the attorneys' fee for last year has not been paid because we didn't have the money.

In the prosecution of the cases in Madison County, we had to ask the State Society to pay the attorneys' fee.

If there are any questions the delegates would like to ask, I would be very glad to give any information that I can.

Dr. Sams: Mr. Speaker, since this is a matter of changing the Medical Practice Act of North Carolina and will necessarily require the attention of the Legislative Committee at our next session of the Legislature, and since it is the foregone conclusion that all reasonable men know that these fees as of the present are not sufficient to let the Board operate successfully, I make the motion that this House do now adopt the report of this Committee and refer it to our Legislative Committee to work out a bill to be introduced in the 1953 General Ses-

sion of the General Assembly, to change the said law.

Dr. Zack D. Owens: I second the motion.

The Speaker: All in favor of Dr. Sams' motion, let it be known by saying "aye"; opposed, "no." So ordered.

Now it gives me very great pleasure to present to this group the President of the Medical Society of the State of North Carolina, who will deliver his annual message to the House of Delegates, Dr. Fred C. Hubbard, Dr. Hubbard! [Applause]

President Hubbard: Fellow members of the House of Delegates of the North Carolina Medical Society: As I approach the end of my stewardship as President of the North Carolina Medical Society, I am moved to say that this has indeed been a crucial year in the history of the organization. Problems from within and without of paramount importance seem ever to mount.

Most reassuring, however, has been the attitude of the Executive Council, the standing committees, the individual members, and the staff. Their reactions to the call of duty have been to grapple with the problems, to give them serious thought, and to stand firm with well-considered opinions. In no instance have I seen a compromise on principle.

I have been impressed with the statesmanlike approach on the part of the members of the Executive Committee and other committees to matters pertaining to the professional and business interests of the Society. There has been manifest always a deep interest, serious consideration, determination, perseverance, and finally decisive action in most matters.

The efficiency of our Executive Secretary has been proved beyond a doubt by the high plane upon which he has conducted the business interests of the Society. His devotion to his work and his absolute loyalty to the profession have been tested in a hundred ways to the satisfaction of those who have contacted him. Always congenial, willing, and enthusiastic, he has been a good fellow-traveler.

Our constitutional secretary has served in a most unselfish and efficient way. His advice on many matters of controversial nature in connection with the Society's work has been most useful and has always been given wholeheartedly.

Our attorney, John Anderson, has shown great interest and willingness at all times to give advice and close cooperation in matters with a legal angle. It has indeed been a pleasure to work with one who has given such satisfactory service in the interests of the Society. He has gone out of his way many times and sacrificed other interests in order to place his services at our disposal.

The powerful force of cooperation has been in evidence on every side. Particularly is this true in the work of the Executive Council. In this fact we should find great satisfaction. Without it our organization would be as "a house divided against itself" and would soon fall prey to the outside forces which seek to destroy our usefulness as a free and democratic body. This spirit seems to pervade the Society as a whole and to give power to its activities.

We of the medical profession have, I think, abundant reason to look hopefully and confidently ahead to greater achievements in the field of individual and organized medical endeavor. Through cooperation and coordination of efforts on the part of medical and health forces, allied agencies, and other professions, we shall be able to advance to higher levels of service. With positive programs we should successfully resist the encroachment of socialistic forces and push further back the horizon of medical and health services in our state. Furthermore, we can in this way allay the emotional tension of an erstwhile, excited, and illudened public.

There are, of course, many avenues of approach to the over-all program of the North Carolina Medi-

cal Society. These approaches are made mainly through the work of the many committees of the Society. Through the instrumentality of these, the programs are initiated, formulated, and disseminated. All of the 48 committees are more or less active and have very positive programs.

The membership of the Society continues to increase to an all time high. Out of 3275 (A.M.A. census) physicians in the state, 2519 are members of the Society. In the total number are included 179 colored physicians. On the whole, the spirit of the members seems to be high. In fact, it is evident in almost every activity of the Society. The fact that there are outside forces which would tend to disrupt our organization seems to have served to bring us closer together in a determined effort to thwart such influences.

The financial condition of the Society is good. Funds are being handled by properly bonded personnel. All expenditures are under strict control by the Finance Committee, the Executive Council, and the House of Delegates. Regular audits are made by expert accountants which show the financial condition of the Society is sound. We have been able to meet all of our obligations, to carry on the various activities of the Society which entail some expense, and to develop a substantial reserve. The financial position of the Society has been improved by about \$15,000 during the past year.

Cooperation between the Medical Society and the State Board of Health never was better. The educational program and the preventive measures carried on by the State Board of Health have been gratifying and effective. The school health program seems to be working smoothly and with the desired results. The medical profession, I believe, is cognizant and appreciative of the fact that in the State Board of Health another set of hands is afforded by which to bring to the people very important health services which would be impossible otherwise on the part of the profession. The Board of Health deserves the complete support of every member of the Society.

Medical education in North Carolina is recognized more and more as a potent factor in producing more well-trained doctors and ancillary personnel to furnish the state with the best of medical and health services. We are very proud of the fact that our medical schools are doing an A-1 job in the field of medical education. We look forward with great anticipation to even greater strides in this work when the new 4-year school at Chapel Hill becomes activated. It is felt that through an integrated program which we hope can be worked out between the medical schools, the medical profession, and the hospitals of the state, more efficient and effective work will be possible all the way from the level of the community clinic to the medical center. North Carolina stands at the present time in the foremost ranks of the great medical educational centers of the nation.

The many medical symposia which are held annually in our state offer unusually fine educational advantages. The postgraduate and extension courses have been a means of affording the doctors of our state great advantages for keeping abreast of modern treatment and practices in medicine and surgery. It would be hard to estimate the value of these symposia courses from an educational standpoint.

We face many medical and health problems in our state, not the least of which is adequate provision of medical service and hospital facilities to the mentally ill. Our position on this, however, is being steadily improved, and it is believed that ere long we shall be able to cope with the problem satisfactorily. The Society's Committee on Mental Hygiene is active in the support of provisions for better mental health. Various societies and clinics have been organized in the state which are giving serious consideration to our mental health problems,

The Committee on Hospital and Professional Relations, of which there is one member from each district, has given serious consideration among other things to the corporate practice of medicine. This is a very important and still an unsolved problem. The action of the State Society and the A.M.A. in disapproving this practice has been emphasized over and over, and the committee of your State Society has made many contacts with doctors and hospitals in trying to correct this abuse. The process of eliminating this practice will of necessity be very slow and will need to be solved at the local level for some time to come.

The political interests of organized medicine are of great and pressing importance. I hope that every doctor in the State of North Carolina realizes that he should assume the role of a self-appointed politician to a very definite degree. He should show an intelligent interest in candidates who present themselves for election to public office and should study their platforms with a view to obtaining information relative to their stand on legislation pertaining to medical and health services. Someone said that either the medical profession must enter politics or else politics will enter and destroy the profession. A large segment of doctors does not vote. Many of them do not even register. The only way in which we can bring pressure to bear for what we conceive to be the best interests of organized medicine and of our country is to show an active and very intelligent interest in political matters. Let us use our franchise to the greatest possible advantage.

The work of the Public Relations Committee continues to stand out as one of the most important programs of the Society. In spite of the fact that changes have been made in the staff during the past year, the committee has made many contacts with individual physicians and groups, both of physicians and the lay people. While it is pretty generally considered that the doctor's public relations is a matter primarily of individual concern, still there is a very definite and important role to be played at the level of the State Medical Society. Here we have specially trained personnel who, through contacts with the component medical societies, district societies, and even individual doctors, as well as the public, can more effectively place the program on an over-all and effective working basis. An important part of the public relations program has been its high school essay contest which is sponsored by the American Association of Physicians and Surgeons. This has been provocative of constructive thought and is effective in promoting mutual understanding and better relations between the physician and the public.

The scope of activities of the Rural Health Committee is ever-widening. This committee consists of one representative from each medical district in the State. During the past year an advisory committee composed of nine members, mostly from the rural farm groups, has been appointed. In this way it is believed that more advanced information and planning for organization of community health forces may be effected and the programs be interpreted and activated at the local level. The approach is on an individual or "grass roots" level. The response has been wonderful. Rural people are thinking more and more for themselves in a systematic way about the health conditions. Consequently, they are making improvements in this direction in the truly democratic way. A spirit of cooperative effort on the part of individuals and groups at the community level is being stimulated. Miss Charlotte Rickman has rendered a most wonderful service as a consultant in this work, and many health councils in one form or another have been organized in the state.

Chronic illnesses and the problems of the aged loom larger and larger on the horizon of medicine. Consequently, they are getting more and more attention by the medical profession and the public at large. Problems of prevention, hospitalization and rehabilitation that remain largely unsolved are being worked out gradually. In cooperation with other social agencies I have no doubt that further scientific and educational programs will eventually solve these problems. The Committee on Chronic Illnesses has a very comprehensive and active program underway.

The Cancer Committee, in conjunction with the State Division of the American Cancer Society is working continually and effectively in the support of the annual cancer campaign for funds, and the work of the cancer detection and diagnostic centers, of which there are several in our state. The North Carolina Institute for the Care of Incurable Cases of Cancer was sponsored by leaders in the medical profession. This, in my opinion, is a most worthy and humanitarian project, skillfully worked out. It has received nationwide attention and acclaim, being one of only six such institutes in the United States.

The working relations between the medical profession and the North Carolina Industrial Commission seem to be gradually, but very slowly, becoming more satisfactory. It is felt by the Medical Society committees dealing with the Industrial Commission that satisfactory adjustments will be made from time to time. Certain concessions in fees have been made during the past few months, and it is felt that the relations are gradually improving.

The Committee on Emergency Medical Care has prosecuted its program in a remarkably effective and creditable way. Many blood-collecting units, first aid units, and hospital units have been organized over the State. It is the aim eventually to have units in each county. The importance of this program cannot be overstressed. Mobile units should be ready at any time to answer calls in stricken areas. It is one of the most important projects of organized medicine in North Carolina and in the nation. A grand opportunity is afforded to respond to an emergency service of paramount importance. The work of this committee deserves the utmost of support on the part of every individual member of the Society.

The matter of membership for Negro physicians is still a problem. We await some action on the part of the A.M.A. in support of our plan to give the Old North State Medical Society membership in the A.M.A., recognition by the North Carolina Medical Society, and access to our scientific assemblies. It is expected that within another year tangible results will be had in this matter.

I should like to urge continuous and active support on the part of the profession for the program of revision of the coroner system, as proposed by our special committee studying the matter. This system, when put into effect, will give a systematic approach and a solution to the problem of diagnosis that has been a perplexing one for the profession for years.

The long continued efforts put forth by the Committee on Prepaid Medical Insurance Plans have been rewarded with success. The Blue Shield Medical Certificate is ready to go on the market. To the Hospital Saving Association a great deal of credit goes for having helped to arrange this certificate along with a companion hospital certificate. This committee deserves the highest praise for duty well performed. More than four years of work and sacrifice on the part of the members of the committee went into this project. No committee has ever more successfully discharged its duties and made a more important contribution to the Society than this. My

hat is off to them. May I urge that each member give his complete support to the program and that a majority of the members of the medical profession in each community sign up. It is a most important and humanitarian project and the only real means of combatting effectively compulsory health insurance.

Due to the great program in industrial development and commerce in North Carolina, the Committee on Industrial Health has taken on a new vitality, and under the direction of Dr. O. L. Miller as Chairman, is off to a good start with a splendid program. This response on the part of the medical profession was necessary in order that it discharge its responsibilities in medical and health services to our working people.

All of the committees of the Society deserve honorable mention for the grand cooperation given in the interests of the Society's work. I should like to mention particularly the Committee on Grievances, the Committee on Home Town Care of Veterans, Legislation, Postgraduate Medical Study, and Nursing. The demands on these committees have been heavy, and they have responded to the fullest extent. Every one of the 48 committees of the Society has made a definite contribution and cooperated to the end that the organization might function satisfactorily.

In passing, I should like to mention the State Committee for the Study of Hospital Financing, a subdivision of the National Commission on Hospital Financing. While this is not a Society function, still it is one which should receive close cooperation and study on the part of the profession.

North Carolina was picked as the pilot state by the National Commission for the Study of Hospital Financing on account of the fact that great progress has been made in health matters in North Carolina and the fact that the accounting system of the Duke Foundation had been in effect in hospitals of the two Carolinas for many years and afforded an opportunity for the study of accumulated data which was very pertinent to the study of the Commission on Hospital Financing. North Carolina feels honored that the President of our University, Gordon Gray, was selected as Chairman of the National Commission and that Graham Davis, another North Carolinian, was chosen as its Director. It is felt that this study was long overdue in view of the ever-upward spiraling of hospital costs. It was decided that every element in the hospital bill should be considered and ways and means of bringing to the people the best possible service at the lowest cost worked out.

The medical members of the North Carolina Committee for the Study of Hospital Financing are aware of the fact that the item of medical care probably plays a substantial part in the cost of hospitalization. There are many elements in this item, however, which are largely beyond the control of the medical profession, items which have come about as the result of advances in scientific medicine on the one hand and demands on the part of the public on the other. It has been charged from some quarters that this study might be used as propaganda for socialized medicine. You may be assured that the medical members of the North Carolina Committee, as well as the members of the other professions and the lay members, are resolved that no such use of the findings of the Committee shall be made.

I should like now to make the following recommendations:

1. I recommend that the present system of financing of the Society remain in status quo.

2. I recommend that the State Medical Society continue to back the State Board of Health in its program and give its fullest cooperation.

3. I recommend that the Medical Society give serious thought to and lend strong support to programs

pertaining to medical education for the study of chronic diseases of the aged.

4. I recommend that the promotion of postgraduate study be continued.

5. I recommend that active support be given to the move to renew appropriations by the next General Assembly for scholarships for medical, dental, pharmacy, and nursing students who will agree to locate in rural communities, and that particular stress be placed on scholarships for students of nursing.

6. I recommend that Blue Shield-Blue Cross pre-paid insurance coverage be stimulated by over-the-counter sales and the support of individual doctors.

7. I recommend that further efforts to change the date of the annual sessions of the Society be made in order to prevent conflict with other meetings.

8. I recommend the organization of an emergency call service by physicians be given active support in the interests of better medical service and improved public relations.

9. I recommend that the profession give closer attention to the present study on hospital financing, with particular reference to the element of medical service in the total cost of hospitalization.

10. I recommend that the present trends of medical services through public health agencies, the methods used, and the implications of such, be considered seriously by the profession. This should be done on the basis of the impact on free enterprise. It should be viewed on the state and local level.

11. I recommend that our Executive Secretary, who has been so diligent and has given so much extra time to the interests of this Society, be granted at least two weeks' vacation each year with pay.

I should like to say that to have served as President of the North Carolina Medical Society has been to me the greatest honor, a high privilege, and a pleasure. The many mistakes and failures in my stewardship have been of the head, never of the heart. Whatever good has been accomplished, and I feel that there is much, is due largely to the services of your Executive Secretary and the Executive Committee.

I owe a debt of deep gratitude to those who have made it possible, through pinchhitting for me, to give this service to our Society. I refer particularly to the staff of the Wilkes Hospital and to my friend, Dr. Harry Johnson of Elkin.

In my visits over the State to the various medical groups and societies, I have been impressed with the high character of the scientific programs and the wholesome attitude of the physicians in their desire to bring to the people ever-increasing and improved medical service. The scientific meetings are an important part of the program of medical education in our State. It has been a liberal education to me.

I thank you for the encouragement given me by many of you, for the tolerant attitude which you have shown, for your loyal support, and for the fine spirit of cooperation shown by the entire membership. The memory of this shall be cherished always. I find great satisfaction in the fact that the reins of our Society are being passed to the competent hands of our new President, and I feel sure that the best interests of our Medical Society will be advanced. [Applause]

The Speaker: The Chair is going to appoint a committee to study recommendations contained in the report today as well as the presidential address tomorrow evening, and report to the second meeting of the House of Delegates on Wednesday afternoon at two o'clock. The Chair will appoint on this Committee Dr. Claude Squires, of Charlotte, Dr. Bahnsen Weathers, of Roanoke Rapids, and Dr. E. S. King, of Shelby, Dr. Claude Squires acting as Chairman.

We will now hear the report of the Secretary-Treasurer, Dr. Millard D. Hill.

Dr. Millard D. Hill: Mr. Speaker: This constitutes an account of three years of stewardship as the responsible fiscal officer of this Society. This three-year period has marked notable progress for the medical profession in this State, some of which has been peculiarly related to the efforts of the officers of this Society. To be sure, these years have been fraught with increasing responsibility for your Secretary-Treasurer. Considerable progress can be reported in attaining security for the affairs and conduct of the business and future activities which you from time to time depend on us to do for you. I here express to you my sincere appreciation for the confidence bestowed and the honors of service which you have directed my way.

The support of the membership has been most gratifying.

As of April 29, 1952, there were 2331 members in good standing in the State Society. Comparably, this represents 92 per cent of the total membership attained for the previous year.

As of December 1, 1951, the membership stood at an all time high level of 2504 members of which more than 2000 had not attained honorary fellowship status. This accomplishment in membership by the Society resulted in retention of our three delegates to the A.M.A. despite its revision of the allocation base.

It is a notable fact that our headquarters office has a progressive record in the promotion of membership among eligible and ethical physicians in the State. Its efforts in this respect may be remarked upon and commended.

At the close of 1951 there was a substantial accrual of assets which has been again added to the reserve fund through the purchase of United States Government bonds.

The business activity of your headquarters office accounts for a substantial segment of the income accruing to the Society during the year. Gearing the office and personnel to increasing such production should be a progressive goal of the Society.

I herewith tender the annual audit report and recommend this report be adopted by the House of Delegates.

AUDITOR'S REPORT **MEDICAL SOCIETY OF THE STATE OF** **NORTH CAROLINA, INCORPORATED** **Raleigh, North Carolina**

12 Months Ended December 31, 1951

OFFICERS:

Dr. Frederic C. Hubbard, President
North Wilkesboro, N. C.
Dr. J. Street Brewer, President-Elect
Roseboro, N. C.
Dr. Forest M. Houser, First Vice-Pres.
Cherryville, N. C.
Dr. Arthur L. Daughtridge, Second Vice-Pres.
Rocky Mount, N. C.
Dr. Millard D. Hill, Secretary-Treasurer
Raleigh, N. C.
Mr. James T. Barnes, Executive Secretary
Raleigh, N. C.

Chairman and Members of the Finance Committee
Medical Society of the State of North Carolina, Inc.
Raleigh, North Carolina

Gentlemen:

Pursuant to engagement, we have audited the books and records of the Medical Society of the State of North Carolina, Inc., Raleigh, North Carolina, for the period beginning January 1, 1951, and ending December 31, 1951, and present herewith our report.

Exhibits and Schedules:

In presenting to you our findings, as the result of the audit, we have prepared four Exhibits and three Schedules, as enumerated in the Index, which are attached hereto as a part of this report.

Balance Sheet—Exhibit "A":

The first statement is a list of the Assets, Liabilities, Reserves and Net Worth, which we designate as Balance Sheet, December 31, 1951, Exhibit "A". This Balance Sheet has been divided into two sections. One section contains the Current Operating Fund, which represents the Current Assets, Liabilities and Reserves while the other Fund has been designated as a Capital or Non-Operating Fund and which contains the office equipment owned and used by the Medical Society at estimated values established in a prior year and at actual cost for purchases during the last three years.

During the year an imprest petty cash fund of \$50.00 was set up and we show this amount as the first item on the Balance Sheet.

The cash in the First Citizens Bank and Trust Company, Raleigh, North Carolina, in the amount of \$13,470.83, was verified through a reconciliation of the balance as shown by the records of the Medical Society with a certificate which was obtained independently from the bank. This reconciliation is shown in detail in Schedule-1 of the report.

Accounts receivable in the amount of \$417.61 is shown on the Balance Sheet and this figure in the main represents the total of several uncollected balances due from local advertisers for advertising in the State Medical Journal. As the amount is relatively small and the accounts deemed "good", no verification of them was made. At the end of the year the Executive Secretary determined \$90.00 of accounts receivable to be "bad" and charged that amount off. The balance of \$417.61 is after this \$90.00 charge-off.

The investment in United States Defense and Savings Bonds has been shown at cost value of \$61,524.00, in the Balance Sheet, and in detail in Schedule-2 of this report. This figure includes \$14,800.00 expended in 1951 for two (2) \$10,000.00 bonds. The Series "F" Bonds have an increment in value, due to lapse of time since date of purchase, of approximately \$2,638.40; however, this additional value has not been taken into account in this report.

The office equipment and furniture which is shown on the Balance Sheet in the amount of \$6,679.24 is listed in detail in Schedule-3. This amount represents an estimate made in a prior year and adjusted for purchases made during the last three years. The items shown herein represent cost value of the equipment of the Medical Society. As there were no Liabilities outstanding against this office equipment, we have shown the entire amount as Net Worth—Capital Fund—in the Balance Sheet.

Under the "Liabilities" section we have listed those accounts, expenses, etc., incurred prior to December 31, 1951, for which statements or accounts were rendered or for which payment was due. "Refunds Payable" in the amount of \$130.57 represents the amount of dues overpaid by various members and which were still held in credit escrow at the end of the year. The \$1,025.50 "Due American Medical Association" is for A. M. A. dues collected by the Society and not turned over to A. M. A. at December 31, 1951, because of lack of some required information. \$17.70 "Due Hospital Savings Association", is the amount withheld from employees' salaries under a group plan and due to be paid to the Insurance Company. The pay roll taxes, \$38.97, for Social Security and \$343.70 for Withholding, were paid during the course of the audit.

The deferred credit of \$1,710.00 is for payments made on technical exhibits spaces at 1952 Convention which were received in 1951. This amount will be credited to technical exhibit income in 1952.

The figure of \$2,831.88 for "Reserves" is made up of three amounts. One of these is \$600.00, representing a Reserve for Scholarship for Marian McMillan, said person being a high school student, winner of such a scholarship in an essay contest. This amount is held in escrow for payment to a college which she chooses upon graduation from high school. Another such reserve of the same nature, for \$737.38, is held for Joe Baxter Roberson. The third amount of \$1,494.50 is designated Reserve for Mental Hygiene Committee, which Reserve is in the process of being built to an amount of \$5,000.00 to cover expenses and costs of the said committee in its rehabilitation work. To the balance in this account at January 1, 1951, of \$994.50 was added the unexpended Budget Appropriation of \$500.00 in 1951, resulting in the balance at December 31, 1951 of \$1,494.50.

The "Net Worth" section of the Balance Sheet is comprised of two figures: \$69,364.12 being the balance of the Current Operating Fund-Net Worth for the year; and \$6,679.24 representing the balance of Capital Fund-Net Worth.

Analysis of Net Worth—Exhibit "B":

The second statement is an analysis of the changes in Net Worth during the year.

The Current Operating Fund-Net Worth balance was arrived at by adding to the balance January 1, 1951 of \$59,591.24, the amount of Net Income from operations for the current year—\$12,642.08, and deducting therefrom Expenditures for Capital Assets, \$1,631.82, allocation to Reserve for Mental Hygiene Committee, \$500.00, and allocation to Reserve for Joe Baxter Roberson, \$737.38.

The Capital Fund-Net Worth balance is derived from adding purchases during the year for Capital Assets in the amount of \$1,631.82 to the balance January 1, 1951, of \$5,547.42, and subtracting therefrom dispositions during 1951 of \$500.00.

Statement of Income and Expenses—Exhibit "C":

A statement showing a budget comparison of the income and expenses for the twelve-months period has been shown in Exhibit "C". This statement is, in effect, a statement of operations for the year, and by examination it will be seen that the revenue or income of \$106,279.73 exceeded the expenses of \$95,269.47 by \$11,010.26. However, there was included in the expenses \$1,631.82 in Capital Expenditures for equipment. Eliminating these we show income from operations of \$12,642.08, which has been added to the unexpended balance of the Current Fund and shown in the Net Worth section of the Balance Sheet. In comparison with the budget, actual income was more than the budget expectation by \$3,492.23. The main items accounting for this seem to be, upon analysis, \$2,931.00 more realized than expected from Membership Dues, and \$545.00 more income from Sale of Exhibitors' Spaces than expected. Further examination shows that actual expenses were less than the budget provision by \$7,207.53, due mainly to \$7,164.75 less expenses than expected in the Public Relations Program budget and \$2,528.70 less expenses than budgeted in the Intra-Functional Activity budget.

We note that \$1,250.00 was budgeted for a new membership record system but no expenditures were made therefor. The Executive-Secretary informed us that several systems were reviewed and considered during the year but with no definite decision being made. He stated that there is again a like provision in the 1952 budget and that he hopes a new

system will be acquired in the coming year. We would state that we consider the installation of a new membership record system justifiable and advisable.

Cash Receipts and Disbursements—Exhibit "D":

A statement showing in detail the cash receipts and disbursements of the Medical Society during the year under review has been shown in Exhibit "D" and may be summarized as follows:

Cash Balance January 1, 1951.....	\$ 14,874.13
Cash Receipts During the Year.....	165,148.82
Total Cash Available	\$180,022.95
Less: Disbursements During the Year:	
For Operations	\$96,909.80
To A. M. A.—Dues	52,985.50
For Capital Expenditures	1,856.82
For U. S. Bonds	14,800.00
Cash Balance at December 31, 1951	\$ 13,470.83

We made a careful analysis of the cash transactions and, where practicable, traced the receipts to their original source. Disbursements for expenses were supported by cancelled checks and invoices issued in the regular course of business. Our examination did not disclose any irregularities in the cash and we believe the funds have been carefully and honestly handled and all accounted for.

General Comments:

A surety bond covering faithful performance of the Secretary-Treasurer, Dr. Millard D. Hill, in the amount of \$50,000.00, is in force and held by the Medical Society and was examined by us. Also in force and examined by us were a Primary Commercial Blanket Honesty Bond in the amount of \$25,000.00; a fire insurance policy covering fire loss on office equipment, books and records in the office of the Executive Secretary, Raleigh, North Carolina, in the amount of \$2,500.00; an Automobile Schedule Liability Policy; and a Standard Workman's Compensation and Employer's Liability Policy.

We found the records maintained to be in excellent condition; we were extended every courtesy and co-operation during the course of the audit; and we experienced no trouble in making our audit and obtaining the necessary information for this report.

WE HEREBY CERTIFY that, we have audited the books and records of the Medical Society of the State of North Carolina, Incorporated, for the period from January 1, 1951 to December 31, 1951, and in our opinion the within statements show the correct financial condition of the Society at the close of the year, together with the operating result for the twelve months ended at that time, according to information and explanations given us and as shown by the books, subject to the within qualifications.

Respectfully submitted,
A. T. ALLEN & COMPANY
Certified Public Accountants

Raleigh, N. C.
January 25, 1952

Medical Society of the State of North Carolina, Inc.
Raleigh, North Carolina

Index

Exhibits:

Balance Sheet	Exhibit "A"
Analysis of Net Worth	Exhibit "B"
Statement of Income and Expense	Exhibit "C"
Cash Receipts and Disbursements	Exhibit "D"

Schedules:

Reconciliation of Bank Account	Schedule—1
Investment in United States Bonds	Schedule—2
Schedule of Capital Assets	Schedule—3

EXHIBIT "A"—BALANCE SHEET December 31, 1951

ASSETS:	
CURRENT OPERATING FUND:	
Petty Cash	\$ 50.00
First-Citizens Bank and Trust Co.— (Schedule-1)	13,470.83
Accounts Receivable	417.61
Investment in U. S. Savings and Defense Bonds—at Cost (Schedule 2)	61,524.00
TOTAL CURRENT OPERATING FUND	\$75,462.44
CAPITAL OR NON-OPERATING FUND:	
Office Furniture, Fixtures and Equipment—(Schedule-3)	6,679.24
TOTAL ASSETS	\$82,141.68
LIABILITIES, RESERVES AND NET WORTH:	
LIABILITIES:	
Refunds Payable	\$ 130.57
Due American Medical Association	1,025.50
Due Hospital Savings Association	17.70
Accrued Federal Withholding Tax	343.70
Accrued Federal Social Security Tax	38.97
TOTAL LIABILITIES	\$ 1,556.44
DEFERRED CREDIT:	
Advance Payments on Technical Exhibits Spaces at 1952 Convention	1,710.00
RESERVES:	
Reserve for Scholarship for Marian McMillan	\$ 600.00
Reserve for Scholarship for Joe Baxter Roberson	737.38
Reserve for Mental Hygiene Committee	1,494.50
TOTAL RESERVES	2,831.88
NET WORTH:	
Current Operating Fund— (Exhibit "B")	\$69,364.12
Capital Fund—(Exhibit "B")	6,679.24
TOTAL NET WORTH	76,043.36
TOTAL LIABILITIES, RESERVES AND NET WORTH	\$82,141.68

EXHIBIT "B" ANALYSIS OF NET WORTH 12 Months Ended December 31, 1951

CURRENT OPERATING FUND:			
Balance January 1, 1951	\$59,591.24		
ADD: Net Income from Operations— Exhibit "C"	12,642.08		
Total	\$72,233.32		
DEDUCT: Expenditures Made			
for Capital Fund	\$1,631.82		
Allocation to Reserve for Mental Hygiene Committee	500.00		
Allocation to Reserve for Scholarship for Joe Baxter Roberson	737.38	2,869.20	
TOTAL CURRENT OPERATING FUND 12-31-51—to Exhibit "A"	\$69,364.12		
CAPITAL FUND:			
Balance January 1, 1951	\$ 5,547.42		
ADD: Purchases Made During Year Through Current Funds	1,631.82		
Total	\$ 7,179.24		
DEDUCT: Dispositions During Year	500.00		
TOTAL CAPITAL FUND 12-31-51— to Exhibit "A"	6,679.24		
TOTAL NET WORTH DECEMBER 31, 1951	\$76,043.36		

EXHIBIT "C" STATEMENT OF INCOME AND EXPENSES 12 Months Ended December 31, 1951

	Budget Provision	Actual	Difference
INCOME:			
Membership Dues—Current and Prior Years	\$ 78,000.00	\$ 80,931.00	\$ 2,931.00
Interest on Gov't Bonds	287.50	287.50	—0—
Sale of Exhibitor's Spaces	6,000.00	6,545.00	545.00
Journal Advertising—Local	17,000.00	3,162.27	389.58
Journal Advertising—Nat.		14,227.31	
Journal Subscriptions	350.00	179.14	41.95
Sales of Rosters		212.81	
Authors' Contributions to Cost of Cuts	400.00	99.08	300.92
1% Commission from A.M.A. for Collecting Dues	500.00	539.76	39.76
Unexpected Revenue	250.00	95.86	154.14
TOTAL INCOME	\$102,787.50	\$106,279.73	\$ 3,492.23

EXPENSES:

Executive Budget:			
A-1 Expense—President	\$ 900.00	\$ 818.27	\$ 81.73
A-2 Salary—Sec.-Treas.	2,400.00	2,400.00	—0—
A-3 Travel—Sec.-Treas.	600.00	600.00	—0—
A-4 Salary—Exec.-Sec.	7,500.00	7,500.00	—0—
A-5 Travel—Exec.-Sec.	2,100.00	1,284.91	815.09
A-6 Clerical Assistants— Executive Office	5,000.00	5,174.22	174.22
A-7 Equipment— Executive Office	800.00	827.18	27.18
A-8 Office Expense— Executive Office	3,800.00	4,675.55	875.55
A-9 Bonding	340.00	342.60	2.60
A-10 Audit	200.00	225.00	25.00
A-11 Pay Roll Taxes	165.00	168.31	3.31
A-12 Insurance	100.00	72.84	27.16
A-13 Membership Record System	1,250.00	—0—	1,250.00
A-14 Publications— Reports & Exec. Aid	100.00	200.93	100.93
Totals Executive Budget	\$ 25,255.03	\$ 24,289.81	\$ 965.19

Journal Budget:

B-1 Publication of Journal	\$ 17,200.00	\$ 21,637.49	\$ 4,437.49
B-2 Cuts for Journal	700.00	529.44	170.56
B-3 Salary—Editor	2,100.00	2,100.00	—0—
B-4 Salary—Asst. Editor	2,100.00	2,100.00	—0—
B-5 Office Expense— Editorial Office	400.00	331.85	68.15
B-6 Office Expense— Bus. Mgr.'s Office	300.00	140.79	159.21
B-7 Equipment— Bus. Mgr.'s Office	200.00	45.00	155.00
B-8 Travel—For Journal	200.00	—0—	200.00
B-9 Pay Roll Taxes	63.00	57.85	5.15
B-10 Refunds, Subscriptions, etc.	75.00	—0—	75.00
Totals Journal Budget	\$ 23,338.00	\$ 26,942.42	\$ 3,604.42

Intra-Functional Activity Budget:

C-1 Expense of Execu- tive Committee and Travel of Councilors	\$ 2,569.00	\$ 1,480.77	\$ 1,088.23
C-2 Travel of Councilors in Districts	250.00	250.00	—0—
C-3 Expenses— Councilors	200.00	25.50	174.50
C-4 Expense—Legisla- tive Committee	1,000.00	496.53	503.47
C-5 Expense—Public Re- lations Committee	500.00	159.98	340.02
C-6 Expense—Maternal Welfare Committee	1,400.00	825.00	575.00
C-7 Expense—Rural Health and Medical Care Committee	6,500.00	7,170.49	670.49
C-8 Expense— Cancer Committee	300.00	300.00	—0—
C-9 Expense— Convention Arrangements Committee	150.00	5.26	144.74
C-10 Expense— Scientific Exhibits Committee	100.00	35.80	64.20
C-11 Expense—Mental Hygiene Committee	500.00	—0—	500.00
C-12 Expense— Grievances Committee	700.00	630.94	69.06
C-13 Expense— Committees in General	1,200.00	1,460.03	260.03
Totals Intra-Functional Activity Budget	\$ 15,369.00	\$ 12,840.30	\$ 2,528.70

Extra-Functional Activities Budget:

D-1 Expenses of A.M.A. Delegates	\$ 1,575.00	\$ 1,786.59	\$ 211.59
D-2 Conference Dues	100.00	13.00	87.00
D-3 Women's Auxiliary	250.00	236.80	13.20
D-4 Expenses of Delegates to A.M.A. Regional Conference	100.00	—0—	100.00
Totals Extra-Functional Activities Budget	\$ 2,025.00	\$ 2,036.39	\$ 11.39

Public Relations Program:

E-1 Salary—Secretary for Public Relations	\$ 6,400.00	\$ 6,399.96	\$.04
E-2 Travel—Secretary for Public Relations	2,100.00	1,066.36	1,033.64
E-3 Travel—Committee Chairman	300.00	—0—	300.00

E-4 Stenographic Assistance—Public Relations	2,100.00	2,321.28	221.28
E-5 Equipment—Public Relations Office	1,000.00	600.46	399.54
E-6 Expense—Public Relations Office	2,500.00	2,581.12	81.12
E-7 Pay Roll Taxes	128.00	88.84	39.16
E-8 Publications and Executive Aids	250.00	84.84	165.16
E-9 Radio-Motion Picture Production, Distribution and Printing	2,850.00	170.26	2,679.74
E-10 News and Press Releases	2,500.00	1,979.77	520.23
E-11 Public and Personalified Activities	1,000.00	191.19	808.81
E-12 Expenses—High School Essay Contest	800.00	62.62	737.38
E-13 Collateral Public Relations Activities With Other Committee Activities	822.00	38.55	783.45
Totals Public Relations Program	\$ 22,750.00	\$ 15,585.25	\$ 7,164.75
Annual Sessions Convention Budget:			
F-1 Programs	\$ 600.00	\$ 625.65	\$ 25.65
F-2 Hotel Convention Expense	1,600.00	1,196.40	403.60
F-3 Publicity, Promotion and Reporter's Expense	150.00	208.37	58.37
F-4 Entertainment (General)	300.00	111.52	188.48
F-5 Orchestra and Floor Entertainment	800.00	900.00	100.00
F-6 Expenses and Honorarium—Guest Speakers	350.00	311.06	38.94
F-7 Fee and Expense of Banquet Speaker	300.00	261.40	38.60
F-8 Electric Amplification	175.00	172.10	2.90
F-9 Booth Installations and Supplies	2,500.00	2,390.75	109.25
F-10 Projection Expense	400.00	191.74	208.26
F-11 Badges	250.00	108.16	141.84
F-12 Transactions Reporting Service	1,000.00	1,565.80	565.80
F-13 Rentals—Extra Facilities for Sections	40.00	18.00	22.00
Totals Annual Sessions Convention Budget	\$ 8,465.00	\$ 8,060.95	\$ 404.05
Miscellaneous Budget:			
G-1 Previous Accounts Payable	\$ 100.00	\$ 5.39	\$ 94.61
G-2 Refunds	200.00	250.00	50.00
G-3 Retainer of and Fees for Legal Council	2,500.00	3,965.93	1,465.93
G-4 Reporting (Executive Committee, etc.)	1,200.00	212.20	987.80
G-5 President's Jewel	75.00	47.05	27.95
G-6 Token, Plaque, Certificate and Mats—General Practitioner of Year	100.00	7.23	92.77
G-7 Expenses—Sections	100.00	123.55	23.55
G-8 Contingency and Emergency	1,000.00	903.00	97.00
Totals Miscellaneous Budget	\$ 5,275.00	\$ 5,514.35	\$ 239.35
TOTAL EXPENSES	\$102,477.00	\$ 95,269.47	\$ 7,207.53

SUMMARY:

TOTAL INCOME	\$106,279.73
LESS: EXPENSES:	
Executive Budget	\$24,289.81
Journal Budget	26,942.42
Intra-Functional Activity Budget	12,840.30
Extra-Functional Activities Budget	2,036.39
Public Relations Program	15,585.25
Annual Sessions Convention Budget	8,060.95
Miscellaneous Budget	5,514.35
EXCESS OF INCOME OVER EXPENSES	\$11,010.26
ADD: Capital Expenditures From Current Fund	1,631.82
NET INCOME FROM OPERATIONS—	
TO EXHIBIT "B"	\$12,642.08

EXHIBIT "D"
CASH RECEIPTS AND DISBURSEMENTS
12 Months Ended December 31, 1951

RECEIPTS:

CASH RECEIPTS FROM REGULAR OPERATIONS:

Membership Dues—	
Current and Prior Years	\$80,951.00
Medical Journal Advertising—Local	2,940.02
Medical Journal Advertising—National	13,318.08
Rebate on Cooperative Advertising Contract	909.23
Reimbursed Costs of Engraving Plates	99.08
Sale of Exhibitor's Spaces at 1951 State Convention	6,545.00
Sale of Exhibitor's Spaces at 1952 State Convention—Received in Escrow	1,710.00
Medical Journal Subscriptions and Sales	179.14
Sale of Rosters	212.81
Interest on U. S. Government Bonds	287.50
Overcollection of Dues, Later Refunded	1,383.00
Overcollection of Dues, Held in Escrow at 12-31-51	96.00
1% Commission From A. M. A. for Collecting Dues	539.76
Sale of Adding Machine	100.00
Sale of Mimeographing Machine	125.00
Donations	65.00
Sale of Book	16.00
Dividend From University Microfilms	.34
Refund of Unused Postage in Postage Meter Machine	4.06
Old Outstanding Checks Credited to Bank Account	98.50
Sale of Badges	9.46
Miscellaneous Refunds—Credits to Expenses	68.84
TOTAL CASH RECEIPTS FROM REGULAR OPERATIONS	\$109,657.82
RECEIVED FROM N. C. DIVISION OF AMERICAN CANCER SOCIETY FOR RURAL HEALTH WORK	1,500.00
AMERICAN MEDICAL ASSOCIATION REGULAR DUES COLLECTED	53,991.00
TOTAL RECEIPTS	\$165,148.82
CASH BALANCE JANUARY 1, 1951	14,874.13
TOTAL TO BE ACCOUNTED FOR	\$180,022.95

DISBURSEMENTS:

DISBURSEMENTS FOR CURRENT OPERATIONS:

Expenditures—	
Executive Budget	\$ 24,502.67
Less: Capital Expenditures—Office Equipment	1,052.18
Expenditures—Journal Budget	\$ 26,937.17
Less: Capital Expenditures—Office Equipment	45.00
Expenditures—Intra-Functional Activity Budget	\$ 14,359.34
Less: Capital Expenditures—Tape Recorder	159.18
Expenditures—Extra-Functional Activities Budget	2,036.39
Expenditures—Public Relations Program Budget	\$ 15,593.42
Less: Capital Expenditures—Office Equipment	600.46
Expenditures—Annual Sessions Convention Budget	8,099.95
Expenditures—Miscellaneous Budget	5,224.35
Refunds of Dues Overcollected and Not Accepted	1,383.00
Refunds of Dues Previously Accepted	170.00
Refunds of Rent of Exhibit Spaces	120.00
To Set Up Petty Cash	50.00
Reissue of Old Outstanding Check cancelled	97.50
Accrued Expenses Payable at 12-31-50	224.97
Accrued Pay Roll Taxes at 12-31-50	327.18

Accrued Hospitalization Insurance at 12-31-50	18.90	
Total	\$ 97,288.02	
Less: Deductions From Wages (Included Above) Unpaid at 12-31-51:		
Federal Withholding Taxes	\$ 343.70	
F. I. C. A. Taxes	16.82	
Hospitalization Insurance	17.70	378.22
TOTAL DISBURSEMENTS FOR CURRENT OPERATIONS		\$ 96,909.80
PAYMENTS TO AMERICAN MEDICAL ASSOCIATION REGULAR DUES COLLECTED		52,985.50
EXPENDITURES FOR CAPITAL ASSETS		1,856.82
PURCHASE OF U. S. GOVERNMENT BONDS		14,800.00
TOTAL DISBURSEMENTS CASH BALANCE DECEMBER 31, 1951:		\$166,552.12
First Citizens Bank & Trust Co; Raleigh, N. C.		13,470.83
TOTAL ACCOUNTED FOR		\$180,022.95

SCHEDULE-1

RECONCILIATION OF BANK ACCOUNT
December 31, 1951FIRST-CITIZENS BANK AND TRUST COMPANY,
RALEIGH, N. C.:

Balance Per Bank Statement		\$14,201.56
Less: Outstanding Checks:		
Number 1146	\$ 3.00	
1525	10.00	
1539	25.00	
1611	25.00	
1617	1.65	
1639	2.74	
1644	48.27	
1652	184.77	
1655	25.00	
1657	2.00	
1658	20.00	
1665	225.00	
1666	50.00	
1667	25.00	
1668	55.00	
1670	5.20	
1672	.85	
1673	2.25	
1674	15.50	
1675	4.50	
		730.73

BALANCE PER BOOKS—TO EXHIBIT "A" \$13,470.83

SCHEDULE-2

INVESTMENT IN UNITED STATES BONDS
December 31, 1951

DEFENSE BONDS—SERIES "F":

Defense Bonds Series "F"	Date of Issue	Date of Maturity	Par Value at Maturity	Cost
No. M75369F	12-1-41	12-1-53	\$ 1,000.00	\$ 740.00
M75370F	12-1-41	12-1-53	1,000.00	740.00
M75371F	12-1-41	12-1-53	1,000.00	740.00
M75372F	12-1-41	12-1-53	1,000.00	740.00
M75373F	12-1-41	12-1-53	1,000.00	740.00
M75374F	12-1-41	12-1-53	1,000.00	740.00
M98836F	1-1-42	1-1-54	1,000.00	740.00
M98837F	1-1-42	1-1-54	1,000.00	740.00
M98836F	1-1-42	1-1-54	1,000.00	740.00
M98835F	1-1-42	1-1-54	1,000.00	740.00
M98834F	1-1-42	1-1-54	1,000.00	740.00
M98833F	1-1-42	1-1-54	1,000.00	740.00
C89019F	12-1-41	12-1-53	100.00	74.00
C89020F	12-1-41	12-1-53	100.00	74.00
C89021F	12-1-41	12-1-53	100.00	74.00
C89022F	12-1-41	12-1-53	100.00	74.00
C89023F	12-1-41	12-1-53	100.00	74.00
C89024F	12-1-41	12-1-53	100.00	74.00
C89025F	12-1-41	12-1-53	100.00	74.00
C89026F	12-1-41	12-1-53	100.00	74.00
C89818F	1-1-42	1-1-54	100.00	74.00
C89819F	1-1-42	1-1-54	100.00	74.00
C89820F	1-1-42	1-1-54	100.00	74.00
C89821F	1-1-42	1-1-54	100.00	74.00
C89822F	1-1-42	1-1-54	100.00	74.00
C89823F	1-1-42	1-1-54	100.00	74.00
C89824F	1-1-42	1-1-54	100.00	74.00
C89825F	1-1-42	1-1-54	100.00	74.00
X356002F	4-1-50	4-1-62	10,000.00	7,400.00
X356003F	4-1-50	4-1-62	10,000.00	7,400.00
X356004F	4-1-50	4-1-62	10,000.00	7,400.00

M1644801F	4-1-50	4-1-62	1,000.00	740.00
M1644802F	4-1-50	4-1-62	1,000.00	740.00
M1644803F	4-1-50	4-1-62	1,000.00	740.00
M1644804F	4-1-50	4-1-62	1,000.00	740.00
X356930F	4-1-51	4-1-63	10,000.00	7,400.00
X356929F	4-1-51	4-1-63	10,000.00	7,400.00

SAVINGS BONDS—SERIES "G":

Interest Rate 2½% Payable

Semi-Annually From Date of Issue

No.	Date of Issue	Date of Maturity	Par Value	Cost
No. M1186465G	12-1-42	12-1-54	\$ 1,000.00	\$1,000.00
M1186466G	12-1-42	12-1-54	1,000.00	1,000.00
M1376544G	4-1-43	4-1-55	1,000.00	1,000.00
M1376545G	4-1-43	4-1-55	1,000.00	1,000.00
M1376546G	4-1-43	4-1-55	1,000.00	1,000.00
D616518G	4-1-43	4-1-55	500.00	500.00
M1905733G	9-1-43	9-1-55	1,000.00	1,000.00
M2355967G	2-1-44	2-1-56	1,000.00	1,000.00
M2700601G	4-1-44	4-1-56	1,000.00	1,000.00
M2700600G	4-1-44	4-1-56	1,000.00	1,000.00
M2772895G	6-1-44	6-1-56	1,000.00	1,000.00
M2772896G	6-1-44	6-1-56	1,000.00	1,000.00

TOTAL PAR VALUE AT MATURITY \$79,100.00

TOTAL COST VALUE AT DATE OF ACQUISITION—TO EXHIBIT "A" \$61,524.00

SCHEDULE-3

EXECUTIVE OFFICE:

Wooden File Case—Letter Size	\$ 21.66
Typewriter Desk	25.00
Steel Office Safe	150.00
Checkwriter—Paymaster	40.00
Steel File Case—Letter Size	20.00
Four Steel Card Files	20.00
Office Chair	35.20
One Desk	62.55
Steel Filing Cabinet	24.50
Office Desk	47.95
Letter File—Two Drawer	29.46
Steel Filing Cabinet	71.75
Office Chairs	40.00
Office Desk	87.29
Office Equipment—Miscellaneous	1,149.39
One (1) Telephone Table	15.45
Two Pairs 12" x 38" C. S. Vents and Brackets	8.77
One (1) 20" Vertical Paper Cutter	7.56
One (1) Welch Fan	40.80
One (1) Emerson Fan	24.67
One (1) Desk Lamp	10.26
Two (2) Master Model Audographs and Attachments	725.67
One (1) Map of Greater Carolinas	37.50
Two (2) Double Files 3' x 5'	11.86
One (1) Remington Electric DeLuxe Typewriter	337.90
Three (3) Pendaflax Frames	5.57
Two (2) Grey Steel Cabinets	103.00
Three (3) Transfer Files	11.89
One (1) Spec. D. Outfit File	7.25
Two (2) Legal Filing Cabinets	19.90
One (1) Filing Shelf	2.50
Plywood Carrying Case for Audograph	17.00
Map Framed	3.61
Charter Framed	2.57
Cash Box	2.79
Steel Desk	158.98
Three (3) Desk Trays With Stackers	8.57
Waste Basket	1.40
Large Chair Mat	9.27
Glass Desk Top	11.68
Stenograph and Tripod	100.70
Magic Mailer	6.64
Four Drawer Steel Filing Cabinet	78.03
Four Pendaflax Steel Frames	7.42
Remington Electric Typewriter	430.15
Postal Scale	6.50
Numbering Machine	14.88
Filing Stool	11.23
Bookcase	63.86
Remington Rand Electric Adding Machine	215.01
Metal Storage Cabinet	78.28
Metal Filing Cabinet	92.76
Two (2) Cabinet Shelves	10.30
Metal Cash Box	2.32
Pro Rata Share of Cost of Mimeograph Machine	337.47
Typewriter Table	21.00
Metal Correspondence Separator	6.18

TOTAL EXECUTIVE OFFICE \$ 4,893.90

PUBLIC RELATIONS OFFICE:

Four (4) Aluminum Desk Trays With Supports	\$ 9.00
Steel Costumer	14.20
Postal Scale	4.00
Cash Box	1.50
Supply Cabinet	37.00

Two (2) Waste Baskets	7.00
Metal Executive Desk	112.60
Executive Chair	48.80
Two (2) Side Arm Chairs	60.40
Metal Secretary Desk	136.40
Secretary Chair	30.20
Storage Cabinet	37.00
Two (2) Chair Mats	12.90
Hinge Top Card File	1.60
Stapler	4.95
Pencil Sharpener	1.95
Punch	3.15
Metal Letter File With Lock	61.60
Storage Cabinet	37.00
Royal Electric Typewriter	133.31
Two (2) Electric Fans	63.29
Four Drawer Metal File	69.49
Two (2) Drawer Metal File With Lock and Base	18.36
Supply Cabinet	75.00
Two (2) Desk Trays and Stacks	4.64
Metal Storage Cabinet	57.29
Pro Rata Share of Cost of Mimeograph Machine	508.53
Four (4) Used Venetian Blinds	30.00
TOTAL PUBLIC RELATIONS OFFICE	\$1,581.16
JOURNAL BUSINESS MANAGER'S OFFICE:	
Two (2) Electric Fans	45.00
RURAL HEALTH AND MEDICAL CARE COMMITTEE:	
Masco Tape Recorder	159.18
TOTAL CAPITAL ASSETS—TO EXHIBIT "A"	\$6,679.24

Dr. C. F. Strosnider: Mr. Speaker, I move that we accept the report.

[The motion was seconded by Dr. B. O. Edwards.]

The Speaker: All in favor of accepting the report, please let it be known by saying "aye"; opposed, "no." So ordered.

The report of the Executive Secretary, Mr. J. T. Barnes.

Mr. James T. Barnes: Mr. Speaker, President Hubbard, and Members of the House of Delegates: With due humility to God, I come to report, at the end of a three-year tenure, as your administrative officer. In so doing, one must profess again, and with a profound gratitude, give thanks for the grace which He has bestowed in health of body and of mind through that period. Believe you its import, and still, one must recognize one's unworthiness on the one hand, and the great source of strength which makes all labor possible and one's accomplishments worthy.

Surely one would be unmindful, if not ungrateful, to fail to acknowledge the abundant graciousness which has characterized so many of you with whom there has been contact—members and officials individually—the membership collectively of this Society. Your personal grace has been of scarcely less value and of much import in the personal accomplishments during said tenure.

In undertaking this annual report, one has to remind you that for eight months of the year a complete responsibility for the entire administration of all established policy and activity of the Society has devolved personally upon me. During this course, essential changes of responsibility and personnel have transpired with some impacts of relationship consuming time and effort which scarcely produced for you. For that necessity, we all have our regrets, but, in a sense, it has cleared the way to go forward with the present organization into the fullest year of worthy activity we have known and, we hope, the Society has known. We know our operation and procedures have been under constant scrutiny and that in minor and at unintentional points we may not have come to your expectations, but there has been an abundant honesty of purpose, a loyalty, and a desire to excel. Certainly there has been personal sacrifice to the point of reckoning as to the safety of extending it.

President Hubbard's evaluations and recommendations have been given to you. We hope we may have merited them and with the best effort of body and

mind, we pledge our best to attain the goals which you, through him and the succeeding President, will have set for us.

Headquarters accomplishments, as reflected in factual data, (scarcely accounted) are reported as a unit for the first time. These are tangible evidences that your business is considerable and growing. We hope this data is evidence that you have planned soundly and wisely. Reference is made to the period from April 19, 1951, through April 19, 1952, and the data which follows:

Incoming items of processible mail	12,749
Letters, personal and general, dispatched	34,337
Public relations bulletins dispatched	33,700

Total mail items prepared and dispatched	68,037
Telephone communications, local, prepaid, and toll	1,576

Telegrams dispatched	191
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Reports, formal, miscellaneous, agenda, transmittals, and memoranda	834
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Review of literature (publications, brochures, bulletins, legislation, pamphlets, reports from other associations, A.M.A., and sundry agencies	815
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Personal conferences (Society officials, other officials, agencies, and persons)	797
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Meetings attended (official, public, regional and national)	146
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County Medical Societies	11
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District Medical Societies	5
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Other (non-committee) medical bodies	12
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Public speeches	41
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Speech assists	4
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Releases to Press	37
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Releases to Radio	13
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Package Libraries distributed	4,140
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Anti-Compulsory Health resolutions processed	8
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Educational pamphlets distributed	962
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Movie distribution	22
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Public Relations Bulletins produced	12
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Public Relations Conferences held	1
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We should evaluate for you that much of the production and mailings called for exacting effort rather than casual and volume production. During much of the year there was very scarce handling of educational materials. Personalized correspondence has reached an all time peak for the Society and perhaps must be subordinated to less strenuous methods.

You will note that we realized a slight gain in the 1951 net annual membership (2519). To be sure, loss by larger number of deaths and numerous inactive statuses (in state and abroad) prevent us from claiming a hundred gain of new men who have come into the Society for the year 1952. As of April 29, 1952, the membership stood at 2331—a gain of 4 per cent over the same date last year and we anticipate further gains during the year and a net higher membership for the calendar year 1952.

Legislatively, we have been in a quiescent year with the State Assembly not in session. Despite this, we have collected data and materials on legislative subjects which can well be utilized in the future. Congress has not seemed disposed to enact major health legislation and only minor efforts have been called for in our responsible activities with national programs. While the bureaus and agencies of government have agitated much, there appears to be no great movement prior to next year after the national election has run its course and pointed to public trends and policy. We still will bear the brunt of effort where medicine is involved and we shall count on the grass-roots response which has enabled you to influence those issues which relate well to your concern for the public health and well-being of the people you serve. Your Executive Secretary has fully accounted to the Congress under the Federal Lobby Act and will continue so until the Act is

laid away by the courts, which does seem promising now.

The work of the fifty or more committees has called for arduous contributions on our part. With two exceptions all schedules were met and all productions requested have been completed. The compilation of reports clearly represents the extensive work and achievements of the Committees.

Demands on our time in participation in consultations with allied agencies and groups has increased and the pressure of such service sometimes has been exacting. We shall always be helpful, public-relationswise, in accomplishing for the Society in this respect. An outline of public relations objectives has the tantamount approval of the President and of the Public Relations Committee also encompassing the finance and personnel of rural health activity, and looks toward the definitive "process of seeking out" the underlying causes of dissatisfaction the public manifests toward the individual doctor or the medical profession and the effort to honestly correct these dissatisfactions. There is little implication as to whether the causes of the dissatisfaction are real or imaginary and it makes scarcely any difference as to the task involved for medicine. If real, the goal should be to correct; if imaginary, the task is to clarify the issues involved.

The definition should apply equally to:

- (a) The State Society
- (b) The County Society

Public relations of medicine is really the Public Relations of the doctor.

Our recent association of executive personnel is calculated by training, experience and innate disposition to meet good concepts pointed to us from higher and authoritative experiences in medical public relations as the way forward in developing a program, projects and a content in improving medical public service. Given your individual interest, a reasonable attitude of helpfulness and individual contributions of talent, we hope to gainsay more progress by next year. Remember that in a real sense the economics of medicine, with all of its educational and sociological implications to a "suspecting public," is the No. 1 problem to be surmounted in undertaking a program of medical public relations. It is well related to your individual services and the promoted services of your professional societies and for a time we must give accentuation to the good, the fine, and the solid things we find in the private enterprise of medicine as exists in an untrammelled form today. And then we must build on these services for the great benefit of all people and with the benefit of the help of an understanding of all the people, but always through the framework of the private enterprise.

Finally, let us report upon the management of the North Carolina Medical Journal.

Materials and printing labor have been caught in the upward spiral of prices and the costs of doing business. Despite this, the excellent quality of the format and content of the Journal has been maintained and increases in advertising income realized in 1951 have somewhat leveled the increased costs of production; so the end result of Society contribution is not too different from the previous period of operation. The marked difference of income in comparison to costs of production is due to the lag in applying increased advertising rates which should have been a necessary corollary, but following advice of SJAB and Editorial Board, our increased rates did not go into effect until January 1, 1952, and therefore would not reflect comparatively, and we already sense advertiser resistance to the new rates. As business manager of the Journal, I submit the statement of income and disbursements from January 1, 1951, to December 31, 1951:

Journal Budget	
Publication	\$17,200.00
Cuts	700.00
Salary of Editor	2,100.00
Salary of Assistant Editor	2,100.00
Office Expense:	
Editorial Office	400.00
Business Manager's Office	300.00
Equipment:	
Business Manager's Office	200.00
Travel Expense:	
Journal Business	
(national and local)	200.00
Taxes, Social Security	63.00
Refunds—Subscriptions	75.00
Total Journal Budget	\$23,338.00

Receipts	
Medical Journal Advertising	\$17,389.58
Journal subscriptions and sales	179.14
Sale of Rosters	212.81
Reimbursed cost of cuts	99.08
Appropriated by the Society	5,457.39
	\$23,338.00

Actual Disbursements	
Publication	\$21,637.49
Cuts	529.44
Salary of Editor	2,100.00
Salary of Assistant Editor	2,100.00
Office Expense—Editor	331.85
Office Expense—Business Manager	185.79
Social Security Taxes	57.85
Refunds	Nil

Total Actual Disbursements\$26,942.42

Expenditures	
In excess of budget	\$ 3,604.42
Receipts above expenditures	Nil

As we conclude this report on the use of talents accruing to us over these past years, we seek the means to deal with the continued uncertainties which face all of us in these times. Whatever your goals for us may be, we shall humbly strive to attain them. With all we seek with you the divine grace to live humbly, to serve well and to be allotted additional talents to the end that those things which we do well may be multiplied and our accomplishments together shall be a blessing to all—physically and spiritually. For the good things of life we render eternal thanks and for the right to minister in the care of human kind in a free enterprise we recognize as worth more than much gold.

Dr. O. Norris Smith: I move the report be accepted. [The motion was seconded by several.]

The Speaker: All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

For the second time in the history of the House of Delegates of the Medical Society of the State of North Carolina, we have the personal appearance of the President of the Auxiliary to the Medical Society of the State of North Carolina. It gives me much pleasure to present Mrs. B. W. Roberts, President of the Auxiliary. [Applause]

(The Auxiliary report appears in the proceedings at Annual Reports on page 438.)

Dr. B. O. Edwards: Mr. Speaker, I move the report be accepted and filed.

Dr. C. N. Norfleet [Forsyth]: I second the motion.

The Speaker: All in favor of accepting this report let it be known by saying "aye"; opposed "no." So ordered.

We come to the recognition of visiting delegates. The first delegate is from the North Carolina Dental Society. Dr. Glenn L. Hooper, of Dunn, wired this morning that it would be impossible for him to

be here. We are sorry. But Dr. Hooper will be here tomorrow, I am told.

From the State of Virginia, Dr. James P. King, of Radford, and Dr. Charles Outland, of Richmond. Dr. Outland, will you come up to the rostrum? Or you may use that microphone.

Dr. Charles Outland [Richmond, Va.]: Mr. Speaker, Mr. President, Members of the House of Delegates of the North Carolina State Medical Society: In behalf of the President of the State Medical Society of Virginia and the Speaker of the House (we have a speaker up there, too), I bring you greetings.

As a native North Carolinian and a one-time member of this fine organization, I am particularly honored to be here. I look forward to making new friends and expect to see many of my older friends before leaving. Thank you, sir, very much.

[Applause]

The Speaker: I wish to extend to you the courtesies of the floor during your stay with us.

South Carolina had not certified a delegate as of April 23. I wonder if the South Carolina delegate has appeared. [No response]

Georgia, Dr. M. A. Hubert, of Athens. Dr. Hubert, we will be glad to hear from you.

Dr. M. A. Hubert [Athens, Georgia]: Mr. Speaker, Members of the North Carolina Medical Society: It is my honor and privilege to bring you greetings from the Georgia State Medical Society on this, your 98th Annual Meeting. I consider it a privilege that I was honored by being elected a delegate to your Society, and I wish to extend to you an invitation to our meeting which opens in Atlanta, Georgia, on next Monday. Thank you. [Applause]

The Speaker: Thank you, Dr. Hubert. We are delighted to have you with us and I also extend to you the courtesies of the floor during your stay with us, and I hope you stay throughout the entire session. Dr. W. B. Schaefer!

Dr. W. B. Schaefer [Toccoa, Georgia]: Mr. Speaker, Members of the House of Delegates: It is indeed a pleasure to be here and bring you greetings from the State of Georgia, and invite you to our meeting next week. Thank you. [Applause]

The Speaker: Thank you, Dr. Schaefer. I also extend to you the courtesies of the floor during your stay with us.

Is the delegate from Tennessee, Dr. Daugh W. Smith, in the room? [No response]

Gentlemen, we now pass on to the reports of the committees. I would like to say to you gentlemen that these reports have all been sent in prior to the meeting of the House of Delegates. They have all been reviewed by your President, your President-Elect, your Secretary-Treasurer, your Executive Secretary, and they have been handed to the Executive Council and gone over very thoroughly indeed.

I am going to give the chairman of each one of these committees, as well as the councilors, an opportunity to enlarge on or to say what they wish regarding these reports, and I will have them all read in full if you so desire.

Dr. John D. Bradley [Buncombe]: Mr. Speaker, I move that the reports be presented by title without reading in detail.

[The motion was seconded by Dr. R. L. Hedgpath, of Robeson County.]

The Speaker: It has been moved and seconded that we adopt the suggested procedure regarding the reports of the councilors and committees. Any discussion? If not, all in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

REPORT OF COUNCILORS

Report of First Medical District

The First District Medical Society met at four regular meetings in 1951, in February, May, August and December.

The February meeting was held in conjunction with the final lecture of the Postgraduate Medical Lectures sponsored by the Extension Division of the University of North Carolina. Dr. Hudnell Ware, Professor of Obstetrics at the Medical College of Virginia, was the guest lecturer. A program committee was appointed at this meeting to obtain outstanding speakers for future District meetings. It was voted to continue the Postgraduate Medical Lectures.

At the May meeting, two new members were added to the Society. A motion was made and carried that any honorary member of the State Medical Society would also be an honorary member of the First District Society. A report of the meeting of the State Society at Pinehurst was given by me. The guest speaker for this meeting was Dr. Weston Kelsy, Associate Professor of Pediatrics at Bowman Gray School of Medicine.

The August meeting was held at Nags Head, North Carolina. Seven new members were accepted into the District Society. The guest speaker was Dr. Edwin P. Alyea, Professor of Urology at Duke University School of Medicine.

The December meeting was held in Elizabeth City, North Carolina. Dr. Martin Wisely of Edenton, North Carolina, was elected President; Dr. Robert Anderson of Ahoskie, North Carolina, was elected Vice-President; and Dr. Richard Hardin of Edenton, North Carolina, was elected Secretary-Treasurer. The guest speaker was Dr. Nathan Womack, Professor of Surgery of the University of North Carolina Medical School.

All meetings were well attended. There have been no irregularities reported in the past year.

Respectfully submitted,
ZACK D. OWENS, M.D.
First District Councilor

[On motion, duly seconded and carried, the report was adopted.]

Report of Second Medical District

I submit my annual report for Second Medical District.

During the past year, one instance of alleged abuse by a physician of his narcotic license was brought to my attention. This is under further study. One such instance reported in a preceding year ceased to be of concern on the death of the physician involved.

All county societies in the District are working smoothly and there seems to be a gradual increase in interest on the part of each physician in Ways and Means of Improving Public Relations.

The annual meeting of the Second District is being held in Greenville April 10. A large attendance is expected and an excellent program has been arranged under the able direction of the President, Dr. John M. Mewborn of Farmville.

Respectfully submitted,
ALBAN PAPINEAU, M.D.
Councilor, Second District

[On motion, duly seconded and carried, the report was adopted.]

Report of Third Medical District

The affairs of the Third District have proceeded during the past year in their usual fashion. The office of Councilor has had no momentous decisions to make and no unpleasant happenings to investigate.

The Pender County Medical Society dissolved due to a paucity of members. The members again affiliated themselves with the New Hanover County Medical Society.

The fall meeting of the District Society was held in Wallace in November with Dr. Dean Hundley presiding.

The spring meeting was held on April 2, 1952, in Wilmington with the following new officers elected:

President—Dr. E. G. Goodman, Wilmington, N. C.
Vice-President—Dr. W. T. Turlington, Jacksonville, N. C.

Secretary and Treasurer—Dr. R. M. Fales, Wilmington, N. C.

Respectfully submitted,
DONALD B. KOONCE, M.D.
Councilor, Third District

[On motion, duly seconded and carried, the report was adopted.]

Report of Fourth Medical District

The Fourth District Medical Society has passed through a very pleasant and successful year. There have been no events of note, but the profession has kept pace with developments, and has rendered excellent and, in most cases, ample medical care.

There are a few rural areas where doctors are not always promptly available. The profession is probably enjoying its all-time high in fellowship and accord.

The Society has continued its quarterly meetings which have been well attended. Inspiring scientific programs by outstanding speakers and excellent food have been provided.

The larger County units are well-organized, and have regular monthly meetings. Three smaller County units find it more practical to attend with their neighbors.

No incident of professional irregularity has been brought to the attention of the Councilor during the year.

BAHNSON WEATHERS, M.D.
Councilor, Fourth District

[On motion, duly seconded and carried, the report was adopted.]

Report of Fifth Medical District

The Fifth District Medical Society had two extremely successful scientific sessions this year at which time the routine business was carried on without difficulty in any respect.

There has been nothing of any serious administrative nature coming up within the Fifth District this year that has required any time or effort on my part and it has been most gratifying to note the spirit of harmony and ethical relationship which has existed among the physicians of the Fifth District. Since the coming meeting of the Medical Society of the State of North Carolina will terminate my tour of duty as councilor representing the Fifth District, it is my desire to utilize this space to thank the executive office in Raleigh for the wonderful help that they have given me during the past three years and to extend my regret to that office that I have been unable to do more for the Society.

Although I have been unable to attend all of the meetings of the Executive Council I feel that my absence in each case was definitely unavoidable since it was certainly my desire to make my attendance 100%.

It is, then, my continued wish that my successor on the Executive Council will be better able to give full cooperation to efforts of the Council than I have and that the entire membership of our Fifth District will continue to work together with the harmony and wonderful spirit of cooperation that they have exhibited during my three years as councilor.

HUGH A. McALLISTER, M.D.
Fifth District Councilor

[On motion, duly seconded and carried, the report was adopted.]

Report of Sixth Medical District

During the past year there have been no unusual occurrences in the Sixth District. The component Societies have met regularly and transacted their business. The Councilor has attended all save one of the Executive Council meetings. Two matters have been referred to the Councilor by the Grievance Committee. One of these has been investigated and completed and the other is being investigated.

ARTHUR H. LONDON, JR., M.D.
Sixth District Councilor

[On motion, duly seconded and carried, the report was adopted.]

Report of Seventh Medical District

The Seventh Medical District has had a successful year. A few matters of importance have been dealt with by the Councilor.

The meeting at Monroe was interesting and instructive and well attended. Dr. J. Buren Sidbury of Wilmington was the guest speaker at the evening session.

The Grievance Committee, which came into being after the last state meeting, asked the Councilor to investigate, and make a report on five complaints which had been brought before that committee against physicians in the Seventh District. Two of these complaints were for alleged overcharge. One was for alleged mismanagement of a case. One was made by milk producers for alleged too frequent and unjustified diagnosis of undulant fever, and the other was a complaint of a physician practicing medicine without a license.

An adjustment of the two alleged overcharge complaints was made by the Councilor. The Grievance Committee settled the case of alleged mismanagement. A decision was reached by the Grievance Committee in the milk producer-undulant fever case, but there are some indications that this decision may be subjected to re-examination. The case of the physician allegedly practicing medicine without a license has not yet been completed.

Respectfully submitted,
L. A. CROWELL, JR., M.D.
Seventh District Councilor

[On motion, duly seconded and carried, the report was adopted.]

Report of Eighth Medical District

Events have proceeded smoothly within the Eighth District during the past year. One excellent District meeting was held in North Wilkesboro in the spring of 1951. Another meeting was held in the fall of 1951 in Winston-Salem. Both meetings were well attended.

No disciplinary matters have had to be presented to the Executive Council, and the only irregularity that had to be investigated was the collaboration of a couple of jewelry stores in Greensboro with some Ophthalmologists in the same town who were collaborating in the prescription and sale of spectacles on credit. That matter has been satisfactorily settled.

Your Councilor has attended nearly all of the meetings of the Executive Council.

Respectfully submitted,
J. H. McNEILL, M.D.
Eighth District Councilor

[On motion, duly seconded and carried, the report was adopted.]

Report of Ninth Medical District

The Ninth District Medical Society's Annual Meeting was held at the Hickory Country Club on September 27, 1951, at which time the following Scientific Program was presented:

Principles of Water Balance—Dr. Weston M. Kelsey, of Winston-Salem, N. C.

ACTH and Cortisone—Dr. Ernest Yount, Winston-Salem, N. C.

Certain Surgical Procedures in the Treatment of Chronic Poliomyelitis—Dr. George R. Miller, Gastonia, N. C.

A Clinico-Pathologic Conference — Dr. John C. Reece, Morganton, and Dr. Millard Riggs, Drexel.

Newly elected officers for 1952 are:

Dr. William H. Kibler, president, succeeding Dr. J. H. Shuford, and Dr. E. W. Phifer, secretary-treasurer, succeeding Dr. J. S. Lewis. The Society is scheduled to meet in Morganton, September 25, 1952.

The School of Medicine and Extension Division of the University of North Carolina is now holding, at Salisbury, a course in Medicine, which is being well attended by doctors of the surrounding counties. The University is doing a good work in its extension work.

The Ninth District has grown in numbers and interest, and everything is running smoothly.

Since I have served as Councilor for a number of years, I wish to relinquish this position with the expiration of my term. I appreciate the honor the Society has bestowed upon me in re-electing me from time to time, and wish to thank the Executive Committee for their co-operation during my tenure of office. The Association with the Executive Committee in working for Organized Medicine has been a real pleasure, and it is with reluctance I give up the councilorship, but I feel some younger man should take over this work.

IRVING E. SHAFER, M.D.
Ninth District Councilor

[On motion, duly seconded and carried, the report was adopted.]

Report of Tenth Medical District

I am happy to report to your honorable body that affairs are in good condition in my District.

During the year, I have been handicapped somewhat about my visiting County Societies. I did, however, visit Mitchell-Yancey County Society and McDowell County, in conjunction with a visit to the Tri-County Medical Society, composed of Polk, McDowell and Rutherford Counties.

I have had during the year several controversial issues with various members, including two or three assignments by the Grievance Committee of our State Society. These were all thoroughly investigated, and I am happy to report to you that all have been settled satisfactorily.

I have attended every meeting of the Executive Committee.

During the October meeting of our Tenth District Medical Society, a Symposium was held in Asheville, N. C., at the George Vanderbilt Hotel. A most interesting program, and was well attended. Much good work was accomplished. Our Committee was greatly praised by everyone attending this Symposium. The visitors included President Fred Hubbard, Executive Secretary James Barnes, and many others.

At this business session, I was again unanimously nominated for another three year term as Councilor. Of this I am very proud.

Our District is in good condition in every way.

Respectfully submitted,
W. A. SAMS, M.D.

Tenth District Councilor

[On motion, duly seconded and carried, the report was adopted.]

Dr. Strosnider: I move that we accept the reports of the district councilors.

[The motion was seconded by Dr. William Long, of Rowan-Davie.]

The Speaker: In favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

Report on candidates for General Practitioner of the Year. The Chair will recognize Dr. W. A. Sams as Chairman.

Dr. W. A. Sams: Mr. Speaker, your Committee on the General Practitioner Award met and diligently studied the biography and notations on each nominee from the various county societies presented for this year's award.

Your Committee feels that interest in this honor awarded each year to one of our large membership is waning in that too few names were presented for consideration, and we urge either stimulation of interest in this very laudable work or abandonment entirely.

Your Committee further believes that of the names and biographies presented, two of them are so well presented and neatly arranged that they should both be sent to A.M.A. for national consideration and would urge our delegates to A.M.A. to work diligently and faithfully toward their consideration and selection by that body of one from North Carolina as the General Practitioner of the year.

Our selection is as follows:

Dr. Daniel Smith Currie, Parkton, North Carolina.

Dr. Everett Beam Lattimore, Shelby, North Carolina.

Dr. McTyeire Gallant Anders, Gastonia, North Carolina.

These, we find, are all entirely worthy of your careful consideration.

Respectfully submitted,
WILLIAM A. SAMS, M.D., Chairman
G. GRADY DIXON, M.D.
ZACK D. OWENS, M.D.
BEN H. KENDALL, M.D.
HENDERSON IRWIN, M.D.
ROSCOE D. McMILLAN, M.D.

The Speaker: You are to vote on the three candidates submitted by the Chairman of the Committee on General Practitioner Award. You are to vote by secret ballot.

The Speaker: The Chair will report the result of the balloting for General Practitioner of the Year 1952. The Chair announces that Dr. E. B. Lattimore, of Shelby, received 54 votes, a clear majority, and is declared elected to this distinction for North Carolina.

The Speaker: The report of the Committee on Scientific Awards, Dr. Roland T. Bellows, Chairman.

Dr. Roland T. Bellows: Mr. Speaker, and Delegates and Members: The Medical Society of North Carolina is fortunate in having such a generous offering of prizes to stimulate presentations by members at the annual meetings. The work of the Awards Committee has increased arithmetically every year. In the past twelve months, the number of awards has increased from one to three. Every one of these has been made by counties in the Society, none by any other interests.

There is, thus, much stimulus to maintaining and improving the standards of presentation. The oldest of these awards is the Moore County Award for the outstanding scientific paper suitable for publication in the State Journal. The quality of these presentations has improved each year. The Committee is unanimous and happy in the selection which it has made this year, which will be announced tomorrow at the first General Session.

One year ago, the Wake County Medical Society established an award for the outstanding paper in the field of preventive medicine, public health or maternal and child care. This is to be known as the George Marion Cooper Award. The first George Marion Cooper award will also be made tomorrow.

In recognition of the increasing prominence now

given to the presentation of scientific material by means of various forms of visual media, the Gaston County Medical Society, a few months ago, established an award for an outstanding presentation using this type of presentation. This includes scientific exhibits by any member of the Society, motion pictures, lantern slide presentations, clinic and live subjects by members of the Society.

This has been a stimulus for excellence in all forms of presentation. The job entailed in the selection for the award in the field of visual media is a complicated one which has to be worked out. The Committee is grateful for the aid and advice of Mr. Sheldon White of the Extension Department of the University of North Carolina.

Finally, to expedite the work of the Committee at tomorrow's and Wednesday's sessions, it is requested that the chairmen of each section deliver the report of his section, the selection of the outstanding visual presentation along with the media which was employed, that is, film or lantern slides, to the Committee's representative immediately at the conclusion of the session.

The Speaker: What will you do with Dr. Bellows' report, gentlemen?

Dr. Irving E. Shafer: I move its acceptance.

[The motion was seconded by Dr. B. O. Edwards.]

The Speaker: All in favor let it be known by saying "aye"; opposed, "no." So ordered.

REPORT OF DELEGATES TO AMERICAN MEDICAL ASSOCIATION—JUNE, 1951

The Annual Session of the American Medical Association met in Atlantic City, June 11 to 14, 1951, inclusive. The North Carolina Delegates attended all of the sessions of the House.

Delegates attending were:

Dr. M. D. Hill, Raleigh, N. C.

Dr. B. O. Edwards, Asheville, N. C., who served on the Reference Committee on Industrial Medicine.

Dr. C. F. Strosnider, Goldsboro, N. C., who served as a member of the Chronic Disease Committee and the Reference Committee on Hygiene and Public Health.

Two hundred of the two hundred and one Delegates were present.

The House of Delegates was in session Monday, Wednesday and Thursday.

Tuesday the various Reference Committees were in session holding hearings on the various resolutions introduced in the House of Delegates for action by said body.

Two of the resolutions considered were of such importance that we will state the results of the study and action by the House.

First: That the President and the President-Elect should meet with the Board of Trustees and have equal voting privileges.

Second: That the five immediate Past-Presidents be members of the House of Delegates with all Delegate privileges.

High Lights of the Convention:

The registration of the Atlantic City American Medical Association Convention was 28,396 persons, 12,229 physicians and 16,167 guests and others. This compared with 23,777, including 10,241 physicians in San Francisco last year.

In his report to the House of Delegates, the retiring president, Dr. Elmer L. Henderson said the medical profession had met the threat of socialized medicine with an accelerated positive program designed to advance the health of the nation.

Dr. John W. Cline, the new president, said in his inaugural address that "no health crisis or medical emergency exists in this country." His excellent

talk dealt almost exclusively with the American Medical Association; its aims and objectives.

Dr. Bauer, our new President-elect, pointed out that doctors and medical societies no longer can be purely scientific in their viewpoints, but that they must have an interest in the economics of medicine and in the methods of distribution of medical care.

Dr. David B. Allman, Atlantic City, was elected a member of the Board of Trustees to fill the three years of Dr. Bauer's unexpired term. Dr. Walter Martin, Norfolk, Virginia, was re-elected to the Board for five years.

The adoption of a resolution which supports federal financial aid to medical schools for construction only, was based on the formula of the Hill-Burton Hospital Construction Act.

The adoption of a resolution which urged a "thorough investigation" of activities aimed at the indoctrination of students in grammar school, high school and college with the insidious and destructive tenets of the welfare state.

Board Announces Lay Advisory Group

Dr. Bauer made an important announcement to the House when he said that the Board of Trustees had approved plans for the appointment of a committee of prominent laymen, representing industry, labor, agriculture, education, the bar and the clergy, to advise it in matters of medical care and "to present the viewpoint of the general public."

The press coverage at the Atlantic City session was the biggest in history. In all, 78 science writers representing 58 newspapers, wire services, magazines and publishing houses reported the A.M.A. session.

A total of 3,750 persons representing 367 firms took part in the Technical Exhibits.

Dr. Allen O. Whipple, New York, received the annual Distinguished Service Award of the A.M.A. Dr. Whipple won over Maj. Gen. Harry G. Armstrong, Surgeon General of the U. S. Air Force. The ballot count was: Whipple 98; Armstrong 80.

The retiring President of the Woman's Auxiliary to the A.M.A., presented the American Educational Foundation with a check for \$10,000.

Annual Election of Officers

Dr. Louis H. Bauer, Hempstead, N. Y., was elected President-Elect.

Dr. Oscar B. Hunter, Washington, D. C., was elected Vice-President (deceased as of January 25, 1952).

Dr. J. J. Moore, Chicago, Treasurer.

Dr. F. F. Borzell, Philadelphia, Speaker of the House.

Dr. James R. Reuling, Bayside, N. Y., Vice-Speaker.

Dr. Geo. F. Lull, Secretary and General Manager. (Dr. B. O. Edwards nominated Dr. Geo. F. Lull, Chicago, Secretary and General Manager.)

Respectfully submitted:

C. F. STROSNIDER, M.D.

M. D. HILL, M.D.

B. O. EDWARDS, M.D.

REPORT OF DELEGATES TO AMERICAN MEDICAL ASSOCIATION—DECEMBER, 1951

Your Delegates take pleasure in submitting our report covering the Clinical Session of the House of Delegates of the American Medical Association which was held in Los Angeles, California, December 4-7, 1951.

There were 198 of the 200 Delegates present.

Your Delegates were:

Dr. B. O. Edwards, Asheville, N. C., Dr. C. F. Strosnider, Goldsboro, N. C., and Dr. M. D. Hill, Raleigh, N. C.

Dr. M. D. Hill was appointed Chairman of the Reference Committee on Industrial Health.

Tuesday, December 4, the House of Delegates was called to order by the Speaker, Dr. Frank Borzell, at 10:00 A.M. and proceeded with the business of the House as follows:

1. Preliminary report of the Reference Committee on Credentials.
2. Organization remarks by the Speaker.
3. Remarks of the President, Dr. John Cline.
4. Report of Board of Trustees and Councils. These reports covered their activities over a period of six months.
5. Election of the General Practitioner of the Year: Three men were presented by the Board of Trustees, namely: Drs. Everette Beam Latimore, Shelby, N. C., Clayton Williston, Sault Ste. Marie, Michigan, and A. C. Yoder, Goshen, Indiana. On a second ballot the House of Delegates elected Dr. A. C. Yoder, Goshen, Indiana, the General Practitioner of the year. Dr. Yoder is 84 years old and has practiced medicine for 50 years and is still going strong.
6. Executive session to study the private affairs of the Association.

Wednesday was open for the meeting of the various Reference Committees.

Thursday—Reading and adoption of the minutes of previous session.

New Business: Reports of the Reference Committees.

Executive session to complete the private affairs of the Association.

Complying with your instructions your Delegates introduced a resolution which read as follows: "Resolved that the House of Delegates of the American Medical Association approve the recognition of the Old North State Medical Society as an affiliate of the Medical Society of the State of North Carolina and also of the American Medical Association." As a result of a technicality the resolution is to come up for further consideration at the Annual meeting in June, 1952.

Fellowship dues have been discontinued.

Other clinical Session activities of interest:

1. The attendance was far beyond all expectations.
2. Registration totaled 4,419 physicians.
3. President John W. Cline said, "The next year will be one of important decision. If we are to protect our heritage of freedom the decisions must be correct. Should this country continue on the road which leads to socialism, those things which we cherish will be irrevocably lost."
4. Senators Robert A. Taft and Harry Flood Byrd addressed a public meeting of 7,000 persons on the subject of creeping socialism. Their addresses were received with great enthusiasm.
5. Scores of resolutions were introduced and the House and the reference committees handled the load of work in excellent fashion.
6. A resolution protesting against, "the promulgation of any regulation by the Selective System under which students of chiropractic may be deferred under the Universal Military Training and Service Act."
7. A resolution clarifying House action last June which called for a congressional investigation of the teaching of "collectivism in our schools."
8. A resolution authorizing the A.M.A. to make a survey to determine the number of "deaths of small children and infants resulting from the ingestion of household products not labeled as poisonous."
9. Thirty-nine newspapers and magazine writers covered the Los Angeles meeting.
10. Mr. Donald R. Wilson, Clarksburg, West Virginia, National Commander of the American

Legion, made a surprise appearance before the House of Delegates and delivered an inspiring 20 minute address in which he said that the "three million members of the Legion stand shoulder to shoulder with you, as doctors, in your battle to overcome the encroaching forces of socialized medicine."

11. Dr. Elmer L. Henderson, said that the "election year ahead is perhaps the most critical year of the medical profession's existence as a free society, dedicated to the health of the nation, unhampered by politics."
12. To give you an idea of the size of the crowd at the scientific and technical exposition hall, Abbott's booth served 9,150 persons, who consumed 315 gallons of coffee and 14,000 cookies during the three and a-half days.

Respectfully submitted,
C. F. STROSNIDER, M.D.
M. D. HILL, M.D.
B. O. EDWARDS, M.D.

[On motion made by Dr. James H. McNeill, seconded by Dr. Harry L. Johnson and carried, the reports were accepted.]

REPORT OF FRATERNAL DELEGATES

Report of Delegate to North Carolina Dental Society

I was elected delegate to the North Carolina Dental Society, 1951 meeting. You may recall that because of a conflict of engagements it was necessary for me to be out of the state at the time of the meeting, and Dr. McMillan, at my suggestion, designated Dr. J. B. Bullitt as an alternate delegate in my place. Dr. Bullitt attended the meeting and extended the greetings from the State Medical Society to the North Carolina Dental Society.

W. R. BERRYHILL, M.D.
Delegate

[On motion, duly seconded and carried, the report was accepted.]

Report of Delegates to Medical Society of Virginia

Last October, 1951, Dr. and Mrs. John A. Payne, III, Mrs. Fox and I attended the meeting of the Medical Society of Virginia, which was held at Virginia Beach, Virginia.

The meeting which was most interesting had an unusually good scientific approach to the various problems and topics which were selected for thought and study.

We were extended every courtesy and enjoyed the fellowship and hospitality as well as the informative and well arranged program.

POWELL G. FOX, M.D.
Delegate

[On motion, duly seconded and carried, the report was accepted.]

Report of Delegates to Medical Association of Georgia

On April 17, 1951, it was my pleasure to attend the 101st Annual Session of the Medical Association of Georgia, along with Claude G. Milham, Dr. Cathell was unable to attend on account of illness in the family.

The meeting was held at the Bon Air Hotel in Augusta. The first member I met, by happy coincidence, was Dr. A. M. Phillips, President of the Association. Dr. Milham and I were given the best accommodations in the hotel. It seemed entirely out of place that such should be the case when really outstanding physicians from Georgia were forced to take quarters in the basement. There were 1200 registered.

The scientific meeting consisted of general sessions entirely, with subjects ranging from "The Role of Cerebral Angiography in the Management of Cerebral Vascular Accidents," to the "Etiology and

Treatment of Fever Blisters." Such a program obviously was directed at the general practitioner.

The technical and scientific exhibits were about the same as we have at our Society. But the accommodations were not nearly as adequate.

However, the general conduct of the meeting was exceptionally good. The cordiality of the physicians, from Dr. James E. Paullin, former president of the American Medical Association, on down, was, I believe, in excess of any I have ever seen at any such gathering.

I shall always be grateful to this Society for the privilege of being named as one of its representatives to such an outstanding meeting.

EDGAR ANGEL, M.D.
Delegate

[On motion, duly seconded and carried, the report was accepted.]

Delegate Report of the 1951 South Carolina Medical Association Meeting

The 1951 meeting of the South Carolina Medical Association was held at the Ocean Forest Hotel, Myrtle Beach, S. C., on May 15, 16 and 17, 1951. The meeting of the House of Delegates and most of the other business meetings were held on Tuesday, May 15, 1951. Due to unusual circumstances, I was unable to attend any of these meetings. However, on Wednesday, I talked to a number of the delegates and so far as I was able to determine, I learned of no unusual events, procedures, or contemplated actions by the South Carolina Medical Association that I felt should be called to the attention of the North Carolina Medical Association. I obtained written reports of the committee on Industrial Fees, the Committee on the Care of the Indigent, and the Committee on Medical Curriculum, which I am attaching to this report together with the program of the meeting.

I attended the convention all day Wednesday, May 16, and enjoyed the meeting, the papers, and the Fellowship very much. The scientific sessions consisted of 13 papers that were well presented and well attended. I did not contact or communicate with either of the other delegates from North Carolina.

Respectfully submitted,

J. IRVIN BIGGS, M.D.

[On motion of Dr. Biggs, duly seconded and carried, the report was accepted.]

ANNUAL REPORT OF THE BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

May, 1951 to May, 1952

The State Board of Medical Examiners presents to you, the Medical Society of the State of North Carolina, a report on its activities for the past year.

The board has in its first year given much time and deliberation to its many duties and responsibilities and has endeavored at all times to uphold the high standard of the medical profession and to administer the Medical Practice Act for the benefit of the citizens of the State of North Carolina.

Meeting of the Federation of State Medical Boards of the United States

The president, Dr. Newsom P. Battle, and the secretary, Dr. Joseph J. Combs, attended this meeting held in Chicago in February, 1951, and felt that they derived a distinct benefit from the association of other state board officials and from the information obtained.

Physicians for State Institutions

The board has deliberated at length as to how it might assist the directors in the state mental and tubercular institutions to staff their hospitals and

it has met with the directors and discussed their problems. The following resolution was passed by the board: "That the state mental institutions and state tubercular sanatoria be permitted to conduct an educational program, using graduates of foreign medical schools, this permission being granted on an annual basis as of June of each year."

Foreign Postgraduate Medical Students in Approved Medical Schools Only

The board ruled that each case of foreign postgraduate medical students be handled on its individual merits. Three foreign exchange students have been granted the privilege of receiving postgraduate training at two of the medical schools in this state, as long as they are residents, on an annual basis; that is they must reapply each year to remain in the educational program.

Written Examination

A minimum grade of 60% on any individual subject of the written examination is a new ruling of the present board. The majority of the medical boards in the United States require a minimum grade (60% is about the average) and in the past licentiates of this state have been required to repeat an examination in a subject in which they made below the minimum grade of the state with which they were applying for license by endorsement of credentials.

Endorsement of Credentials

Applicants for licensure by endorsement of credentials to the State of North Carolina are required to meet the minimum grade requirement of the North Carolina written examination.

It is the policy of the board to grant license by endorsement of credentials only when the applicant is ready to move to the State of North Carolina and begin a permanent practice. The exception to this policy is the granting of limited license to residents.

Licensure of Resident Physicians

The committee from the State Board of Medical Examiners met with the Committee of representative physicians with reference to studying the question of required medical licensure for resident physicians and the entire board gave long and careful consideration to this matter and to the recommendations of the committee which waited upon the board. The board ruled that it could not waiver from its established policy that a physician after his fifth year of training, four years in medical school and one year of internship in a hospital, is required to have a license to practice medicine in the State of North Carolina. The secretary of the board so instructed the administrators of all hospitals in the state.

Narcotic Addiction

The board has made a detailed study of each physician addicted to narcotics looking to his rehabilitation. This study is made with the assistance of the respective local medical societies and the Narcotic Bureau. This has been done whether or not the physician has been convicted of any offense.

Six physicians are currently under the surveillance of the board. In one instance a physician has failed to co-operate or answer the summons of the board. Prosecution in this case has not been attempted because there has been no proven violation during this board's term of office. In this instance the board declined to recommend to the Narcotic Bureau that his narcotic license be restored, which license had been surrendered during the term of the previous board.

Revocation of Medical License

Two physicians were convicted in the Federal Court of violation of the Harrison Narcotic Act and

were, therefore, summoned to appear to answer charges preferred by the Board of Medical Examiners. A court-like hearing was held, the board being represented by counsel, and one defendant elected to be represented by counsel. Certified copies of bills of indictment and judgments of the Federal Court were submitted as exhibits and the Narcotic Agent, who directed the investigations, appeared and presented evidence.

Both physicians were found guilty as charged by the Board of Medical Examiners and their licenses to practice medicine in the State of North Carolina were revoked. They were requested to surrender their licenses to the secretary of the board and the same are on file in the office of the secretary.

Three other physicians, who were involved in violation of the Harrison Narcotic Act, but were not prosecuted by the district attorney, voluntarily surrendered their narcotic special tax stamps at the suggestion of the board.

Displaced Physician, Graduate Unclassified

Foreign Medical School

This physician appeared before the board applying for permission to take the written examination for medical licensure to do private practice in North Carolina. A delegation of North Carolina citizens, who had been instrumental in bringing this physician to the United States and North Carolina, even though they had been advised by the previous board that this applicant would probably not meet the requirements of the board, also appeared and petitioned the board to grant this physician the privilege of taking the written examination for licensure, which petition was denied.

Unethical Practice

The president and secretary of the board interviewed two physicians in the office of the secretary in order to investigate alleged reports of unethical practice. The officers of the board did not find sufficient evidence to justify preferring charges, but felt that these physicians may have been benefited by the interviews.

Investigation of Physician Convicted in Superior Court of a Misdemeanor

The board investigated Dr. R., who was indicted in Superior Court of a misdemeanor; however, sufficient evidence was not procured to justify further action.

Dr. R., colored, was indicted in Superior Court for manslaughter but the case was dismissed for lack of evidence. The local county medical society reported that it found no cause for action.

Physician Practicing Without License

Dr. Thomas F. Cathcart, colored, graduate of a grade B medical school, was investigated by the Orange County Medical Society, and a report was made to the Board of Medical Examiners, after which the State Bureau of Investigation was requested to investigate. Following this investigation the case was forwarded to the Attorney General, who instructed the local prosecuting attorney to proceed with the case. Dr. Cathcart was indicted in Superior Court for practicing medicine without a license. At the last report he had not been brought to trial as he had left the state.

Laymen Practicing Medicine Without License

The Board of Medical Examiners upon receiving report from the local county medical society of violation of the Medical Practice Act may request investigation by the State Bureau of Investigation, if it appears that there is probable cause. A report of investigation is referred to the Attorney General, who forwards the same to the local prosecuting attorney for prosecution and indictment if the evi-

dence justifies it. The local societies are very alert and efficient in reporting such irregularities and the State Bureau of Investigation has co-operated with the board at all times and rendered invaluable assistance. The following laymen have been under investigation, some of which have been indicted:

John Comer, Franklinville, North Carolina, has been referred to the district solicitor for prosecution and indictment.

E. A. Gray, Greensboro, North Carolina, is under investigation by the State Bureau of Investigation.

K. A. Kesterson, Naturopath, Gastonia, North Carolina, is under investigation by the State Bureau of Investigation.

Gerald L. Wheeler, Naturopath, Charlotte, North Carolina, has been investigated and the same is in the hands of the local solicitor for indictment and prosecution.

Madison County—

Lattie Boone and Bobby Roberts have been convicted in Superior Court.

Sam P. Mason has been indicted in Superior Court and he is expected to be tried at a later date.

Audie Boone was indicted in Superior Court and a nol pros was taken as he is a patient in a state mental institution.

B. E. Reese has left the state.

The board has assembled five times in the past 12 months to expedite licensure of physicians seeking license by endorsement of credentials. It is also necessary to meet at frequent intervals due to the voluminous amount of other work to be carried on.

The members of your board are:

Dr. Newsom P. Battle, Rocky Mount—Examiner in Surgery.

Dr. Joseph J. Combs, Raleigh—Physiology and Chemistry, alternating with Dr. L. Randolph Doffermyre.

Dr. L. Randolph Doffermyre, Dunn—Medicine and Therapeutics, alternating with Dr. Joseph J. Combs.

Dr. Clyde R. Hedrick, Lenoir—Pathology and Bacteriology.

Dr. Amos N. Johnson, Garland—Pharmacology, Pediatrics and Hygiene.

Dr. James P. Rousseau, Winston-Salem—Anatomy, Embryology and Histology.

Dr. Heyward C. Thompson, Shelby—Gynecology and Obstetrics.

The following are statistics of the work of the past 12 months:

Total number applicants granted license.....	301
By written examination	124
By endorsement of credentials	177
Limited License	59
Residents	50
Limited to a hospital	1
Limited county or counties	5
Limited mental institutions	2
Borderline practice	1
Written examination failure	1
Applicants rejected licensure by endorsement.....	2
Grade B medical school graduate.....	1
No location in North Carolina	1
Applicants declined permission to take written examination	2
Grade B medical school graduate	1
Foreign medical school graduate (unclassified)	1
Hearings	10
Narcotic addiction	5
Physicians as to unethical practice.....	2
Violation Harrison Narcotic Act (conviction Federal Court)	2
Displaced foreign graduate as to licensure, with delegation	1
Investigations by State Bureau of Investigation	8
Narcotic addiction of physician	1

Physician practicing medicine without license	1
Physician indicted in Superior Court	1
Laymen practicing medicine without license	5
Application withdrawn after investigation by the board instituted	1
(For licensure by endorsement of credentials)	
License revoked	2
Conviction in Federal Court (Violation Harrison Narcotic Act)	
Narcotic Special Tax Stamp-board suggested surrender	5
Violation Harrison Narcotic Act (Supplying addicts)	3
Narcotic addiction	2
Board declined to recommend to Narcotic Bureau restoration of narcotic license to physician on account of narcotic addiction	1

Respectfully submitted,

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

NEWSOM P. BATTLE, M.D.,
President
JOSEPH J. COMBS, M.D.,
Secretary-Treasurer

[On motion, duly seconded and carried, the report of the North Carolina Board of Medical Examiners was adopted.]

North Carolina Board of Nurses Examiners

I am very happy to report for the North Carolina Board of Nurses Examiners that we have had a very good year since our last meeting. Of course, we have had a couple of law suits which was no fault of the doctors who were on the board, Dr. Martin and myself, both disapproved of the last law suit which attempted to close Hamlet Hospital.

The North Carolina Board of Nurse Examiners conducted two examinations for professional nurses in 1951:

1. April 4 and 5, 1951, in Winston-Salem, N. C.	
Reported for examinations	149
Passed examinations	93
2. September 18, 19, 20, and 21, 1951, in Raleigh, N. C.	
Reported for examinations	693
Passed examinations	630
Registered by reciprocity in recognition of their registration in other states in 1951	232
Totals—	
Reported for examinations	842
Passed examinations	723
Registered by reciprocity	232
Total registered in 1951	955
Total registered in 1950	916
(Increase of 39 in 1951)	

On January 1, 1952, there were 50 registered by reciprocity in recognition of their registration in other states.

There were 356 North Carolina nurses endorsed for registration in other states during 1951. From January 1, 1952, to March 25, 1952, there have been 140 endorsed for registration in other states making a total of 496 since January 1, 1951.

The spring examinations for professional nurses were held on April 2, and 3, 1952, at the Carolina Hotel, Raleigh, N. C. Enrollment for these examinations was 162.

Number of professional nurses currently registered in 1951	9147
Number of professional nurses currently registered for 1952 as of March 20, 1952	9592

As you know, your representative from the State Medical Society is also on the Board of North Carolina Nurse Examiners, Enlarged, which examines and licenses the practical nurses of North Carolina. The following is a summary of the activities of the Board for the practical nurses:

The North Carolina Board of Nurse Examiners, Enlarged, conducted three examinations for licensure of practical nurses in 1951 and one in 1952. These were given in Raleigh on February 1, June 18, and October 4, 1951, and on February 5, 1952.

Number reported for examinations in 1951.... 124

Licensed by examinations	122
Licensed by reciprocity in 1951	10
Total licensed for 1951	132
Licensed by examinations February 5, 1952	28
Licensed by reciprocity February 5, 1952	2
Total number licensed since January 1, 1952	162
Total number licensed by waiver from June 1, 1947, to July 1, 1949	2523
Total number licensed by examination since 1949	237
Total number licensed since June 1, 1947	2760
Number of practical nurses currently licensed in 1951	2073
Number of practical nurses currently licensed for 1952 as of March 20, 1952	1975

LOUTEN R. HEDGPETH, M.D.,

Examiner for State Medical Society

[On motion made by Dr. Claude B. Squires, seconded by Dr. Irving Shafer and carried, the report of the North Carolina Board of Nurse Examiners was adopted.]

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA REPORT OF EXECUTIVE COUNCIL TO THE HOUSE OF DELEGATES

As of May 1, 1952

As required by the By-Laws this Council, and Interim Authority, reports that upon the Call of the President of the Society, the Council has met upon three occasions through the past year as follows:

September 23, 1951	Raleigh, N. C.
January 27, 1952	Raleigh, N. C.
February 3, 1952	Raleigh, N. C.

The purpose of said meetings was to transact business essential to the operation of the several functions of the Society and to consider propositions and questions arising out of relations with component societies, related bodies and agencies, and with the American Medical Association. Briefly and as concisely as practicable, these transactions are set forth herein:

Meeting September 23, 1951:

The Council met at 11:15 o'clock September 23, 1951 at the Sir Walter Hotel, Raleigh, N. C., and a quorum of fifteen was present.

Dr. Ralph Arnold appeared before the Council, and reported that the members composing the Section on Ophthalmology and Otolaryngology desire to have a business meeting on the day scheduled for the assembly of that section in 1952. On motion, duly seconded and carried, the section on Ophthalmology and Otolaryngology was given "the privilege of having a business meeting for the purpose of discussing proposed legislation."

On motion, duly seconded, discussed at length and in detail, and carried, the following budget for fiscal 1952 was adopted by the Council.

(Pudget attached hereto)

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Approved Budget Estimate

January 1, 1952, to December 31, 1952

RECEIPTS (estimated): \$109,471.00

*Balance January 1, 1952	\$ Nil
Assessments (1950 paying members)*	80,000.00
Interest (net)	237.50
Sales (estimated on 1951)	300.00
Author contribution cost of cuts	100.00
Revenue, unexpected (estimate)	250.00
Technical exhibits (estimated basis 1950) at \$75.00 each	8,000.00
Journal Advertising (estimated basis 1951)	20,000.00
A.M.A. Remittances 1% of 1952 dues processed**	533.50
EXPENDITURES (estimated):	\$108,121.00
Schedule A	\$29,328.00
Schedule B	25,103.00
Schedule C	17,375.00
Schedule D	2,000.00
Schedule E	20,800.00
Schedule F	9,165.00
Schedule G	4,350.00

EXCESS OF RECEIPTS (estimated)

OVER EXPENDITURES (estimated): \$ 1,350.00

RESERVES (estimated): \$ 71,874.00

Bonds	
Cost Value	\$61,524.00
Increment (estimated)	900.00
Excess of 1952 income to be invested	1,350.00

*Based on dues @ \$40 per member per annum.

**To be appropriated to secretarial budget (A-6)

The above budget estimate and attached budget accounts, (as revised) was recommended by the Finance Committee and adopted by the Executive Council on September 23, 1951.

Respectfully
James T. Barnes
Executive Secretary

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Approved: Schedule of Estimated Budget Accounts
January 1, 1952, to December 31, 1952.

A. EXECUTIVE BUDGET: \$29,328.00

A-1 President, expense of (travel and communications)	\$ 900.00
A-2 Secretary-Treasurer, salary of	2,400.00
A-3 Secretary-Treasurer, travel of	1,200.00
A-4 Executive Secretary, salary of	8,400.00
A-5 Executive Secretary, travel of*	2,100.00
A-6 Executive Office, clerical assistants**	6,200.00
A-7 Executive Office, equipment for and/or replacements	800.00
A-8 Executive Office, expense of (12 months rent, communications, printing and supplies, repairs and replacements)	4,462.00
A-9 Bonding	675.00
A-10 Audit	225.00
A-11 Taxes (salary tax)	216.00
A-12 Insurance, fire, compensation and employer's liability	100.00
A-13 Membership Record System, purchase and installation of (estimate)	1,500.00
A-14 Publications, reports and executive aids	150.00

*Basis: Real for personal maintenance and travel by common carrier and mileage at the rate of seven cents for official use of personal automobile.

**Any increment of revenue derived from collection efforts related to A.M.A. dues and process of same shall accrue to this item; provided specific authority of the Executive Council is given to expenditures from such increments.

B. JOURNAL BUDGET: \$25,103.00

B-1 Journal, publication of	\$19,200.00
B-2 Journal, cuts for	500.00
B-3 Editor, salary of	2,100.00
B-4 Assistant Editor, salary of	2,100.00
B-5 Editorial Office, expenses of (12 months rent, communication, printing and supplies, repairs and replacements)	400.00
B-6 Journal Business Manager's Office, expense of (12 months communication, printing and supplies, repairs and replacements)	300.00
B-7 Business Manager's Office, equipment for	200.00
B-8 Journal, travel for (local and National)	200.00
B-9 Taxes, (salary tax)	63.00
B-10 Refunds, subscriptions, etc.	40.00

C. INTRA-FUNCTIONAL ACTIVITY BUDGET: \$17,375.00

C-1 Executive Council, expense of and travel	\$ 2,500.00
C-2 Councilors, travel of in District	250.00
C-3 Councilors, expense of (communications, printing, and supplies)	200.00
C-4 Legislative Committee, expense of (non-legislative year — National aspects)	500.00
C-5 Public Relations Committee, expense of travel to national	200.00
C-6 Maternal Welfare Committee, expense of (secretarial, communications, printing and supplies)	1,200.00
C-7 Rural Health and Medical Care Committee, expense of (salary contribution, travel, printing and supplies, reproductions, equipment, and communications)*	9,275.00
C-8 Cancer Committee, expense of	300.00
C-9 Convention Arrangements Committee, expense of	150.00
C-10 Scientific Exhibits Committee, expense of	100.00
C-11 Committee on Mental Hygiene	500.00
C-12 Committee on Grievances, expense of (travel, reporter services and communications)	800.00
C-13 Committees in general, expense of	1,400.00

*To be excerpted from earmarked portion of funds allocated to public relations derived from annual dues.

**Expense voucher for actual expense.

D. EXTRA-FUNCTIONAL ACTIVITIES BUDGET: \$ 2,000.00

D-1 Delegates to A.M.A., expenses of (3 to each annual and clinical session, Chicago and Denver)	\$ 1,300.00
D-2 Conference dues*	350.00
D-3 Woman's Auxiliary (entertainment in annual program and reporting)	250.00
D-4 Delegates (2) to A.M.A. Regional Conference @ \$50.00	100.00

*Includes authorized Society membership in NSRS.

E. PUBLIC RELATIONS PROGRAM*: \$20,800.**

E-1 Secretary for public relations, salary of	\$ 6,400.00
E-2 Secretary for public relations, travel of	2,100.00
E-3 Committee Chairman, out of state travel of	300.00
E-4 Public Relations, stenographic assistance	2,100.00
E-5 Public Relations, equipment for	1,000.00
E-6 Public Relations, expense of (12 months rent, postage, express, telegraph, printing and supplies, repairs and replacements)	2,500.00
E-7 Taxes (salary tax)	100.00
E-8 Publications and executive aids	200.00
E-9 Radio-Motion Picture production, distribution and printing	1,700.00
E-10 News and press release, production distribution and printing	2,000.00
E-11 Public and personified activities in the field of public relations	800.00
E-12 High School essay contest, expense of (scholarship, communications, printing and supplies)	800.00
E-13 Collateral public relations with other Committee activities	800.00

*Authorized by 1949 House of Delegates with proviso that \$15 of annual dues (estimated to gross \$28,000.00) be specifically allocated and earmarked for the support of a public relations program. The division allocations are estimates only and may be changed within the total of the public relations budget.

**Total diminished by allocation to Rural Health as per policy established by Executive Committee October 30, 1949.

F. ANNUAL SESSIONS (98th) CONVENTION BUDGET: \$ 9,165.00

F-1 Programs	\$ 700.00
F-2 Hotel Convention Expense	1,600.00
F-3 Publicity promotion expense and reporter's expense	200.00
F-4 Entertainment (general, involving personnel)	300.00
F-5 Orchestra and floor entertainment	1,000.00
F-6 Guest speakers (3) expense of and/or honorarium for	350.00
F-7 Banquet speaker, fee and expense of	300.00
F-8 Electric Amplification	175.00
F-9 Booth installations, supplies and signs (scientific and technical) including exhibit expense and promotion	2,500.00
F-10 Projection, expenses of (service-rentals)	250.00
F-11 Badges (members, guests, auxiliary)	250.00

F-12 Reporting service of transactions (sessions and sections)	1,500.00	
F-13 Rentals, extra facilities for sections	40.00	
G. MISCELLANEOUS BUDGET:		\$ 4,350.00
G-1 Previous accounts payable	\$ 100.00	
G-2 Refunds (dues, etc.)	250.00	
G-3 Legal Council, retainer of & fees for	2,000.00	
G-4 Reporting (Executive Council, etc.)	800.00	
G-5 President's Jewel	50.00	
G-6 Token, plaque and certificate, mats General Practitioner of Year	50.00	
G-7 Sections (10), expense of (postage and printing)	100.00	
G-8 Contingency and Emergency	1,000.00	

On motion, duly seconded and carried, the Executive Secretary was authorized to increase the basic rental for exhibit space to \$75.00 per unit.

On motion, duly seconded and carried, the Executive Secretary was given optional authority to pay secretarial service in connection with author writings of data on Archives of Medical History.

On motion, duly seconded and carried, Dr. V. K. Hart was elected to the Board of Trustees of N. C. Hospital Saving for the term beginning July 1, 1951 (verified).

On motion, duly seconded and carried, the reported actions of Delegates to A.M.A. on resolution related to the sponsorship of the Old North State Medical Society as a component body of this Society for recognition by A.M.A., was approved.

On motion, duly made, seconded and carried, affiliation and contribution to National Society for Medical Research by this Society was authorized for the year 1952.

On motion, duly seconded and carried, the interim progress report of the Committee on Rural Health was accepted.

The President of the Auxiliary to the Medical Society made an interim report of organization, plan of activity for the year and progress to date which, on motion, duly seconded and carried, was accepted. The President stated the commendation of the Council.

On motion, duly seconded and carried, the following recommendation of the Committee on Public Relations was adopted:

"That, as of September 23, 1951, all paid personnel in the employ of the North Carolina State Medical Society be made directly responsible to and under the control of the office of the Executive Secretary. Specifically, that as of September 23, 1951, the Department of Public Relations of the North Carolina State Medical Society be placed directly responsible to and under the control of the office of the Executive Secretary, and that the office of the Director of Public Relations be changed to Assistant Executive Secretary in charge of Public Relations."

On motion, duly seconded and carried, a report on activities of the (sic) Public Relations Director was accepted with commendation.

On motion, duly seconded and carried, a verbal interim report by Dr. London of the Committee on Prepaid Medical Service Insurance was accepted.

On motion, duly seconded and carried, the published rule governing award for the best paper given each year by the Moore County Medical Society was referred to the Moore County Society in reference to an expressed interest in having scientific material presented through audio-visual media considered for the Moore County Medal.

On motion, duly seconded and carried, approval was made of the recommendations of the American Medical Association in regard to a Joint Co-ordinating Committee on Accreditation of Hospitals, the support of which will emanate from A.M.A., A.C.S.,

and A.H.A., and, possibly the Canadian Medical Association in the event it so elects.

On motion, duly made, seconded and carried, additional travel allowance and personal maintenance was authorized to the Delegates to A.M.A. Clinical Session by reason of the late shift of the scheduled meeting from Houston, Texas, to Los Angeles, California.

On motion, duly seconded and carried, the report of the Editorial Board recommending a 15% "across the board" increase in advertising rates in the *N. C. Medical Journal*, was adopted.

On motion, duly seconded and carried, the resignation of Dr. L. R. Hedgepeth from the Committee on Nominations Representing the 5th Medical District was accepted.

On motion, duly seconded and carried, Dr. John F. Foster, Sanford, N. C., was elected to serve the remaining term of the 5th District Representative on the Committee on Nominations terminating May 1952.

The following Resolution was introduced by motion:

Whereas, the Executive Council of this State Medical Society views with favor the action of the Hospital Care Association in broadening the aspects of its Board of Directors,

And Whereas, in appointing official representatives from the State Medical Society, we feel that we are giving official approval to the policies of the Association,

And Whereas, we question the advisability of doing so without equal representation,

Therefore, should your Board see fit to request the appointment of four physicians, which would give four lay representatives, four hospital representatives, and four Medical Society representatives on your Board of Directors, we would be inclined to consider favorably your request and so recommend to the House of Delegates.

The motion to introduce the resolution was duly seconded and upon the call of the question, carried.

There being no further business (than discussions) the Council adjourned.

EXECUTIVE COUNCIL MEETING

Raleigh, N. C., January 27, 1952

A called meeting of the Executive Council of the Medical Society of the State of North Carolina was held at the Sir Walter Hotel, Raleigh, North Carolina, at 11:00 o'clock A. M. January 27, 1952, a quorum of fourteen being present. The essential considerations and actions of the Council were as follows:

On motion, duly seconded and carried, a recommendation to the House of Delegates was authorized to seek to amend Medical Practice Act of 1913 by reframing provisions for fees for licensure as set forth in the Act in order to support the essential work of the N. C. Board of Medical Examiners.

On motion, duly seconded and carried, loan or endorsement of finance of N. C. Board of Medical Examiners current deficits in necessary operating expense not in excess of \$2,000, was approved.

On motion, duly seconded and carried, an interim progress report of the Committee on Prepaid Medical Service Insurance Plan was accepted.

On motion, duly seconded and carried, the travel expense of Dr. George F. Bond, Chairman of the Rural Health Committee, to National Rural Health Conference, Denver, Colorado, 1952 was authorized.

On motion, duly seconded and carried, an interim progress report of the activities of the Rural Health Committee was adopted.

On motion, duly seconded and carried, an interim report of Physician's Committee on Nursing was received.

On motion, duly seconded and carried, the interim report of the Committee on Fees and Services in the Home Town Medical Care of Veterans was received and a resolution in opposition to the public policy of the Veteran Administration—(a) Admitting non-charity, non-service-connected disability cases to Veteran Administration Hospitals and without local welfare certification of needs, (b) Receiving insurance benefits being paid to veterans, (c) Providing that the resolution be sent to Congressmen, Veterans Administration, American Hospital Association, American Medical Association, each State Medical Association and to the N. C. Insurance Commissioner, was approved.

On motion, duly seconded and carried, the interim progress report of the Committee on Industrial Cases and Fees was accepted.

On motion, duly seconded and carried, the report of the Committee on Public Relations was accepted; the action of the Committee in accepting the resignation of L. H. Cox as Assistant Executive Secretary for Public Relations, was approved and authority was extended for the employment of an Executive Assistant Secretary for Public Relations of native birth, acquaintance with the population and with newspaper training.

On motion, duly seconded and carried, the Moore County Medical Society regulation restricting its Medical Award to adjudged qualifications of written paper essays was approved.

On motion, duly seconded and carried, an additional scientific section to be entitled Section on Anesthesiology was authorized to be established by headquarters.

On motion, duly seconded and carried, court attorney charges for assisting in handling the Madison County illegal medical practice indictments was approved.

Resolutions of the Cabarrus County Medical Society endorsing a resolution on the subject of professional and ethical standards in hospitals was received as information inasmuch as the American Medical Association had already undertaken a joint responsibility for the standardization of professional and ethical standards in hospitals.

Resolution of the Lenoir County Medical Society enacted in reference to State Mental Hospitals developing a screening system under amended laws, for admissions to State Mental Institutions, was referred to Committee on Mental Hygiene.

On motion, duly seconded and carried, the appropriate authority of \$500 was specified in support of essential expenditures of the Committee on the Coroner System in educating for support of the approved legislative amendments.

On motion, duly seconded and carried, the Executive Secretary was instructed on two applicants for direct membership (a) one required to first apply through the native County component society and (b) one declined exemption due to his absence from the state.

On motion, duly seconded and carried, the proposed educational film—"Cheers for Chubby" was referred to the Committee on Public Relations for disposition as to dissemination within the State.

EXECUTIVE COUNCIL MEETING

Raleigh, N. C., February 3, 1952

A special called meeting of the Executive Council of the Medical Society of the State of North Carolina was held at the Sir Walter Hotel, Raleigh, N. C., at 11:00 o'clock A.M. February 3, 1952. President Frederic C. Hubbard having made the call and presided. A quorum of 12 was present.

President Hubbard prefaced the meeting by citing four agenda items for consideration: (1) National Commission to Study the Cost of Financing Hospital Care of which the North Carolina Committee to Study the Financing of Hospital Care is a component and the growing controversy centered about Harry Becker on the National Commission Staff and the request of physician members of the State Committee that their service on the Committee be advised upon; (2) Matter of considering a proposed contract on a plan evolved by the Committee on Prepaid Medical Service Insurance Plan; (3) Request of the Section on Public Health and Education that its Chairman have permission of the President to invite Sir William Daly, a native Britisher, to address the General Session of the State Society, and; (4) The indication for rescinding action of the Executive Council in September 1951, concerning a proposal to appoint four physicians to represent the Society on the Board of Directors of North Carolina Hospital Care Association of Durham.

Forthright, President Hubbard referred to the representation by Harry Becker on the National Commission, and presented detailed communications and/or documents: Newsletter A.A.P.S. December, 1951; letter Dr. G. W. Murphy to President Hubbard December 27, 1951, and the President's reply; letter from Mr. Gordon Gray to Dr. Murphy, December 31, 1951; letter from Graham Davis, Director of the Commission; letter from Dr. Murphy to Dr. Denton Kerr, President of A.A.P.S.; letter from Dr. Murphy to Mr. Davis; letter to Dr. Murphy from James L. Doenges, M. D. of A.A.P.S. Board; letter to Dr. Hubbard from Marjorie Shearon, January 16, 1952; letter Dr. Murphy to Dr. Kerr; letter January 22, 1952, Dr. Hubbard to Marjorie Shearon; letter from Dr. Gray to Dr. Hubbard; letter of January 22, 1952, from Dr. Hamilton McKay; letter reply of Dr. Hubbard to Dr. McKay; second letter Dr. Hubbard to Dr. McKay; letter Dr. McKay to Dr. Paul F. Whitaker; third letter Dr. Hubbard to Dr. McKay; letter Dr. J. S. Brewer to Dr. Hubbard; Telegram of February 2, 1952 from Dr. McKay (and associates), and; multiple documentation materials from A.A.P.S. and Shearon.

Statements by Drs. Hubbard, Whitaker, Wingate Johnson and A. H. London, Jr., were made as to their position of service and views on the N. C. Study Committee. There followed general discussions. The sense of the present members of the Committee was that the National Commission and its personnel was an accomplished fact; that there was an opportunity for service in serving on the State Committee; that many organizations are interested in the practice of medicine because of its complex relationships and do begin investigations of medicine; that findings of a study are relatively less important than the proper interpretation of findings into factual information; that there is the opportunity to give information as well as to receive information for evaluation and transmission; that it is important and vital to have representation on the Committee conducting the pilot study in North Carolina, and; that vociferous objection to National personnel may have a slant-interpretation from the standpoint of the overall effort to find the facts. At the conclusion of discussion a motion was lodged; That in the knowledge at hand it is to the best in-

terest of the Medical Society to cooperate in full with this Commission to Study Hospital Care and Cost in North Carolina, and that we ask our Committee, the representatives of the State Medical Society to keep their eyes open and their ears well spread for in them we have utmost confidence and in this regard we think it a worth while service, and in so doing, we would be endorsing the stand of our President in his action in doing these things.

The motion was duly seconded.

Discussion of the motion followed with union of expression favorable to the motion.

Upon the question being put there was a unanimous vote of approval and the motion carried.

The actions of the Committee on Prepaid Medical Service Insurance Plan effected February 2, 1952, was reported as follows:

1. That we ask Hospital Saving Association as our exclusive agent to market our plan as a Blue-Shield Certificate in conjunction with a companion Blue Cross Certificate.

2. That such changes be made that they feel necessary to assure cooperation of enough hospitals to assure the success of the venture.

3. That we are willing to increase X-Ray benefits to 50% (so requested by hospitals) but that we again request that X-Ray benefits be administered in accordance with your Committee's compromise suggestion, listing X-Rays as professional services, but payable to radiologists or hospital in accordance with local custom though underwritten by the physicians and accepted as service benefits by participating hospitals.

4. That arrangements be available whereby Hospital Care Association so long as they are approved Blue Cross agency, may also sell the combined certificate carrying the *same* underwriting by physicians.

5. That we still feel that the co-insurance is sound and necessary to curtail abuse, and to lower rates, but we are in accord with the Hospital Association's desire that the same certificate without co-insurance be also available to those who are able to buy it.

6. That in case multiple agencies are authorized to sell this certificate, we do not feel that we have any legal or moral right to insist upon identical premiums, yet we do reserve the right to approve the rates for the professional certificate which physicians are underwriting.

7. That such proposed certificate and rates be returned for our approval within 60 days or sooner if possible.

On motion, duly seconded and unanimously carried, the Executive Council adopted the report and recommendations of the Committee as set forth.

The following motion (as substitute to an earlier and related motion) was introduced: That in view of information received from National Blue Shield Commission to the effect that they desire only one representative in each state; that the question of appointing representatives on the Board of Trustees of the Hospital Care Association of North Carolina be delayed until the matter can be considered further.

The motion was duly seconded and unanimously carried.

After due discussion and consideration a motion that the Council looks with disfavor on inviting Sir William Daly to speak before the General Sessions or Scientific Sections was duly seconded, the question put and carried.

Meeting Sunday, May 4, 1952:

The committee assigned to the Board of Medical Examiners to recommend revision of North Carolina Medical Practice Act recommended the following schedule of fees:

Licensure by endorsement of	
credentials or reciprocity.....	\$100
Licensure by written examination.....	50
Limited license	50
Limited license to practice medicine	
as a hospital resident	10
Duplicate license	10

Moved by Dr. Sams, seconded by Dr. McNeill and carried, that the report be adopted and that Dr. Hick's committee present it to the House of Delegates as the recommendation of the Executive Council, to be sent to the Legislature for such procedure as is necessary to make it law.

Legislative Report

The report, which is a part of the compilation of reports, was received by action of the Executive Council, it being a part of the motion that the President should appoint members of the Legislative Committee from the various specialty sections, as recommended by the committee.

Committee To Meet With The State Commissioner of Public Welfare.

Dr. Street Brewer presented a report of the Medical Advisory Committee appointed to meet with the State Commissioner of Public Welfare. The report was received by the Council for presentation to the House of Delegates and incorporation in the minutes of the meeting of the House of Delegates.

Revision of Constitution and By Laws

In accordance with the proposed revisions set forth in the compilation of reports, the Executive Council approved the revisions in Article II of the Constitution and Article IV, Section 5 of the current By-Laws; these amendments to be presented to the House of Delegates and, if acted upon favorably by the House of Delegates, they may then be approved by the General Session and become a part of the Constitution and By-Laws at once, without the customary intervening period of one year.

Request and Invitation of Hospital Care Association

There was general discussion of the invitation of Hospital Care Association to name four physician members to its Board of Directors, and it was moved by Dr. McMillan, seconded by Dr. Sams, and carried as follows:

RESOLVED, that the Executive Council recommend to the House of Delegates that the invitation and request of Hospital Care that the Medical Society of the State of North Carolina name and appoint four physicians to serve as members of the Board of Directors of Hospital Care Association, be declined.

The meeting thereafter adjourned.

Respectfully submitted,

Fred C. Hubbard, M. D.

President and Chairman Executive Council

Raleigh, N. C.

April 30, 1952

I move, Mr. Speaker, that this House of Delegates adopt this report of the salient transactions and specific actions of the Executive Council transpiring through the course of my tenure of office while I presided over the deliberations of the Council. The motion was duly seconded and unanimously carried.

REPORTS OF COMMITTEES

The report of the Committee on Grievances, Dr. Paul F. Whitaker, Chairman.

Dr. Paul F. Whitaker: This will supplement the report now on file. The Committee on Grievances has held four meetings during the year. We have functioned as specified in the By-Laws and used the normal channels for informing the public and profession as to the existence and functions of the Committee.

Twenty-four complaints have been considered by the Committee during the year. Thirteen have been satisfactorily settled, four are still pending, and in seven cases no action was considered necessary.

It is felt that the Committee is functioning smoothly. However, we believe that the Society, through this Committee, has embarked on an undertaking of considerable magnitude and our experience indicates that the work of the Committee is becoming more difficult and, in all probability, will continue to do so in succeeding years.

The Committee feels that it fills a definite need and we believe that it is a method respecting public relations as well as internal professional structure.

The Committee feels that a revision of the By-Laws is indicated. Dr. Oren Moore, the late lamented Dr. Oren Moore, died, and it has brought up some problems as to the chairmanship, so we recommend as follows: That Section 10 of the By-Laws, "The oldest member in point of professional service shall serve as chairman of the Committee," be stricken and that there be substituted therefor, "The oldest member in point of service on the Committee shall serve as chairman. The Vice Chairman and Secretary shall be selected from its members."

Respectfully submitted,

WILLIAM M. COPPRIDGE, M.D.

G. WESTBROOK MURPHY, M.D.

ROSCOE D. McMILLAN, M.D.

PAUL F. WHITAKER, M.D.

I would like your action, the action of the House of Delegates, on this revision of the By-Laws.

Dr. E. McG. Hedgpeth [Durham-Orange]: Mr. Speaker, I move the report be accepted with the revision as indicated.

[The motion was seconded by Dr. Irving E. Shafer.]

The Speaker: All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

Dr. Donald B. Koonce: Mr. President, I have no further report to make, but at this time I desire to introduce our new Public Relations Assistant.

The Speaker: Yes, sir.

Dr. Koonce: Gentlemen, Members of the House of Delegates and Officers: As you have seen in our report, the Public Relations Committee made several rather serious changes last August. We realized that the Public Relations Department should not be entirely separate from the Executive Secretary's office. We realized our serious mistake and tried to correct that, which means that we will no longer have a Public Relations Director, but an Assistant Executive Secretary in charge of public relations. That forced the resignation of the previous Director.

In March, we had a meeting, and out of a large number of candidates, we selected a gentleman, with the approval of the Secretary, to work as the Assistant Executive Secretary in charge of public relations. Mr. William Hilliard, of Raleigh, is here, and I would like to have him say just a few words to you, please.

The Speaker: We will be very glad to hear from Mr. Hilliard.

Mr. William N. Hilliard: Mr. Speaker, Members of the House of Delegates: I don't come to you as an expert on public relations. I do come with considerable experience in news, both newspaper and radio news experience. I do promise a sincere hope that I can do the job as you want it done, and that I will completely cooperate with Mr. Barnes and the organization as such.

I hope that in the near future I will have occasion to call on or talk to each of you personally. I hope that my official duties will take me into every county in the state to see you and see what your local problems are. I don't promise the solution; I just hope that between us, you with the doctor's angle and me with the reporter's angle, we can work

something out for the good of the profession and the public.

The Speaker: Thank you, Mr. Hilliard.

The Speaker: Report of Advisory Committee to the State Department of Public Welfare. Dr. J. Street Brewer did make his report to the Executive Council yesterday afternoon, and it was recommended to the House of Delegates from the Executive Council to accept his report.

[The following is the report of the Medical Advisory Committee to meet with the State Commissioner of Public Welfare, which, upon action of the Executive Council, was to be made a part of the minutes of the meeting of the House of Delegates:]

"As a member of a special committee from the North Carolina Medical Society, I had the opportunity recently to meet with the State Commissioner of Public Welfare and members of the Board's staff to review the several programs of the State Board of Public Welfare which have medical implications.

"I was glad to find the State Board of Public Welfare carefully and intelligently administering these programs with medical advice and an awareness of the principles which we as members of the medical profession have found to be sound.

"There are more points at which these programs of the State Board of Public Welfare touch the interests and are dependent upon the skills of the medical profession than one might suppose.

"For example, one of the newest programs available is the program of Aid to the Permanently and Totally Disabled. This program was instituted in North Carolina in March 1951, and there are approximately 4200 persons receiving this aid. Every one of these persons has to meet the basic requirements for aid under any and all of the programs of the State Board of Public Welfare—that is, the individual must be found to be in need. This is determined by careful investigation of the applicant's resources and those of his parents and children. Persons whose families are able to care for them are not eligible to receive assistance. Parents are expected to care for their children, and children are expected to care for their aged or disabled parents.

"The question as to whether the applicant is permanently and totally disabled must be determined by competent medical authority. On the basis of this medical examination by a local medical doctor, the State Board Medical Consultant, who is a Raleigh physician, makes his recommendations as to whether or not the applicant qualifies for aid under the law as to mental or physical disability.

"In addition to the program of Aid to the Permanently and Totally Disabled there are other programs of the State Board of Public Welfare which are based upon determined need and which have medical implications. Before I mention these, however, I wish to make it clear that it is not possible under State Board policies for a person to qualify for more than one type of aid at a given time. Among these other programs is that of Old Age Assistance for those past 65. There is also the School-Health Program, the Crippled Children's Services, Orthopedic Hospital, and the Hospital for Children with Cerebral Palsy. The State Board of Welfare also certifies indigency to the Medical Care Commission in connection with state contribution to hospitals for the care of indigents.

"Service is also provided for a group of children by the State Boarding Home Fund. The foster homes that care for these children are licensed by the State Board of Public Welfare.

"There is also the Division of Psychiatric and Psychological Services, which has four clinical psychologists who follow a regular schedule in giving examinations to cases referred through the county department of public welfare by the schools, juvenile courts, private agencies and health departments.

One of the problems which the state agency faces is that of the occasional placement of babies by doctors and hospitals. The state laws concerning the care and protection of children are clear on such points as the following: separation of a baby under six months of age from its mother, the interstate placement of children, and the basic adoption law. All three must be handled by a public welfare agency or a licensed private welfare agency. It is against the law for doctors or hospitals to place children for adoption without the consent and co-operation of a public welfare agency or a licensed private welfare agency.

The State Board of Public Welfare also licenses boarding homes for the care of adults. This program works mainly with aged and infirm. At the present time there are 152 licensed boarding homes in 53 counties for adults. The cost of care in these homes ranges from \$35 to \$300 per month.

And finally, there is a new program of hospitalization for public assistance recipients. This was begun in 1951 when an appropriation from the legislature of \$112,500 was ear-marked for hospitalization for public assistance recipients under the new Federal program, which is the extension of the Social Security Act. Funds are available on a \$6 a day rate on the basis of contribution from the State, \$1.50; County, \$15; Federal, \$3, for a period of 28 days' hospitalization within a year from one patient.

"State Commissioner, Dr. Ellen Winston, asked that any questions, comments or suggestions which the medical profession might have be brought directly to the state agency for clearance rather than being left entirely within the county welfare departments.

"The discussion the day I met with the group in Dr. Winston's office gave evidence of the many areas of work the State Board of Public Welfare has with medical implications, and revealed the Board's need and desire for our help as doctors in interpreting the Public Welfare program. I believe the public welfare people are anxious to have our help and cooperation, and I think it is our duty as doctors to cooperate with them in their work with the needy people of our State. Moreover, it is not only our duty to do so, but it also promotes good public relations for the medical profession when doctors cooperate with these established state agencies.

"J. STREET BREWER, M.D."

Committee to Work with the North Carolina Industrial Commission

There has been some improvement in the administration of the medical provisions of the Workmen's Compensation Act, but disagreements and misunderstandings about fees do continue. The physician having a contested fee should request of the Industrial Commission that it be referred to the "Committee on Fees in Industrial Cases" for review.

There has not been a real upward revision of industrial medical fees since the act became operative. This is obviously unreasonable in view of the tremendous increase in costs and the even greater increase in wages during the last twenty years. Employers and Insurance Carriers contest bitterly all efforts to raise medical fees and their opposition has not yet been overcome.

G. W. MURPHY, M.D.
Chairman

[On motion, duly seconded and carried, the report was adopted.]

Committee on Child Welfare

There has been no formal meeting of the Committee on Child Welfare.

However, in cooperation with the American Acad-

emy of Pediatrics, we plan to distribute to every physician attending the State Medical Meeting a pamphlet entitled, "Are You Using the New Safety Vaccine?"

This is a colorful brochure reporting on an immunization technique for the health supervision program against childhood's number one enemy—accidents.

JAY N. ARENA, M.D.
Chairman

[On motion, duly seconded and carried, the report was adopted.]

Committee on Cancer

There has been one meeting of the Cancer Committee during the past year, on January 13, 1952, in Raleigh, N. C. The program for the year was fully discussed and approved:

1. A full and free discussion of the United Federated Fund-raising campaign. It was decided that we should remain free from Federated Fund-raising and to continue to participate in the Cancer Campaign during the month of April each year.

2. The expansion of Diagnostic Detection Centers in the state: This was evaluated, and realizing the much good to be derived, particularly from an educational standpoint, it was suggested that expansion be carried on as much as possible.

3. It is recommended that more Symposia be held in the state at District level.

4. Develop methods for interesting County Medical Societies to appoint a committee, or at least a chairman, to work with local Units of the Cancer Society.

At this meeting the members of the Board of Directors of the North Carolina Division of the American Cancer Society were invited to participate in a round table discussion relative to Wake County Medical Society's recommendation to establish a new type of clinic in cooperation with the American Cancer Society and the North Carolina Board of Health. In Executive Session following this discussion, the Cancer Committee voted to accept the recommendation of the Wake County Medical Society. However, at a meeting of the Board of Directors of the North Carolina Division of the American Cancer Society, the directors unanimously voted not to accept the recommendation of the Wake County Medical Society. The proposed recommendations of the Wake County Medical Society follows:

"The Cancer Committee of the Wake County Medical Society recommends the establishment of a Cancer Clinic in cooperation with the American Cancer Society and the North Carolina Board of Health. This Clinic will be located at Rex Hospital and will be operated under the following principles:

1. A detection clinic for all persons over forty years of age. Examination will be made of the five following areas:
 - a. Oral cavity and pharynx
 - b. Skin
 - c. Breast
 - d. Rectum
 - e. Genitalia
2. Patients with abnormal findings will then be referred to their own physician. He may treat the patient or refer him, if indigent, to the diagnostic management clinic for examination and treatment.
3. Patients who have no physician will be referred (1) if indigent, to the diagnostic management clinic or (2) to any one of a list of available physicians.
4. The diagnostic management clinic will examine and treat all indigent patients referred, either from their own physicians or the detection clinic.
5. It is further recommended that the physicians who serve in these clinics do so without fee.

6. The cancer clinic should provide for registration of all cases of cancer in Rex Hospital and for follow up of these patients through their physician."

The North Carolina Cancer Institute was formally opened at the Dedicatory Exercises held at the Home of the Institute, four miles west of Lumberton, on Sunday, March 23, 1952. The first patients were received on March 24. I shall be able to give fuller details of the operation of the Institute at the meeting of the House of Delegates on May 5.

Respectfully submitted,
 ROSCOE D. McMILLAN, M.D.
 Chairman

Committee on Hospital and Professional Relations

The Committee on Hospital and Professional Relations has had no formal meeting during the past year.

There have been no irregularities or controversies reported.

Respectfully submitted,
 ZACK D. OWENS, M.D.
 Chairman

[On motion, duly seconded and carried, the report was adopted.]

Committee on Industrial Health

This Committee, during the past year, has endeavored to determine its sphere of usefulness (if any) to organized medicine in general and to this State Society in particular. To this and other ends every member of the Committee has been diligent and co-operative in attending sessions held. The Committee convened twice—in Winston-Salem—(1) January 6th and (2) March 16th, 1952. In our deliberations we have had the counsel of President Hubbard; Executive Secretary, Mr. Barnes; Editor of the Journal, Dr. Wingate Johnson; and Dr. Mac Roy Gasque, Ecusta Paper Corporation, Pisgah Forest, North Carolina.

The Convention of the National Council on Industrial Health was held in Pittsburgh in mid-January, 1952. Your Committee and the State Society were ably represented there—by Dr. Manson Meads of the Faculty of Bowman Gray School of Medicine, and by Dr. Gasque, from the State-at-large. Both men brought back interesting and informative reports and recommendations—that of Dr. Meads constitutes a part of this formal report to your body:

SUGGESTIONS FOR A PROGRAM FOR THE COMMITTEE ON INDUSTRIAL HEALTH, NORTH CAROLINA MEDICAL SOCIETY

I. Survey of Needs

- a. **Physicians:** awareness of the importance of and problems concerned with industrial health, industrial practices, etc.
- b. **County Society Industrial Health Committees:** activities and problems
- c. **State Industrial Health Practices:** adequacy of health programs in large and small industry, legislative regulations and activities, insurance coverage.
- d. **Medical Schools:** teaching activities related to industrial health.

II. Education

- a. **Physicians:** programs related to industrial health at county, district and state medical

society meetings; postgraduate courses; articles in State Medical Journal; in-plant meetings; pamphlets sponsored by state committee.

- b. **County Medical Society Committees on Industrial Health:** suggestions as to activities and integrations.

III. Integration of the Total Program From the State level:

- a. State Commission on Industrial Hygiene
- b. State Nursing Society: regulations as to the function of the industrial nurse; sponsor course or other educational programs.
- c. Voluntary Health Insurance Plans: increase intensity of education in industrial plants for voluntary insurance.
- d. Civil Defense Programs
- e. Medical Schools: encourage adequate teaching programs in industrial health.

From the County Medical Society level:

Chamber of Commerce } management
 } — labor
 } community

IV. Special Problems for Possible Study

- a. Code of ethics
- b. Develop plans for good health service in small industry
- c. Legislation—improvements were necessary, panel of consultants for consultation with State Compensation Board, migrant worker—(laws regarding medical care and sanitation).
- d. Problem of insurance carriers and physician solicitation.
- e. State rehabilitation center.
- f. The role of the state vs. the county medical society committees on industrial health.
- g. Problems and usage of the older worker in industry.

Joint Conference A.M.A. Council on Industrial Health and Chairmen of State Committees on Industrial Health

January 17, 1952 Pittsburgh, Pa.

Symposium: Industrial Health Experiences in Pennsylvania

Paper I: How we began the work: Dr. Charles-Francis Long

Stimulus World War II (1939)

Objectives:

1. Survey physicians through a questionnaire: (copy Penn. Med. J. Mar. Apr. 1940)
 220/10,000 answered (98% of those industry connected)
2. Increase the physicians familiarity with the problems:
 - a. Address each district meeting.
 - b. Establish Co. Med. Society Committees.
 - c. Postgraduate refresher course—6 lecture syllabus printed Penn. Med. J. Aug. 1941.

- d. Compensation laws mimeographed and sent out to all physicians.
 - e. State committee prepared papers to be delivered at county medical societies (Penn. Med. J. Feb. 1943).
 - f. Committee became a State Commission on Industrial Health with co-chairmen for various sections of the state. Encourage leadership at the county society level.
3. Increase interest of employers:
 - a. Interest and work with the Chamber of Commerce (the connecting link)
 - b. Industrial Health pamphlets.
 - c. Joint conferences and symposia at state medical society meetings.
 - d. Emphasis directed principally at small industry.
 4. Integration with Union Health Funds and General Health and Welfare Plans (i.e. Blue Cross)
 5. Integration of program with the State Nursing Society; the industrial nurse as the one in charge of accident care in many small industries is "practicing without a license."
 6. Medical Schools: stimulate undergraduate and graduate teaching in the field.
 7. Co-ordination with civil defense programs.

The program is a co-operative one with all interested persons participating.

Paper II. The Program of the County Medical Society Committee on Industrial Health
Dr. D. C. Braun (substitute)

- a. One meeting per year devoted to Industrial Health.
- b. Offer two postgraduate courses.
- c. Develop plans for good health services in small industry.

Paper III. The Trade Organization Fosters In-Plant Industrial Health Mr. Charles Noyes (exec. sec. Williamsport Board of Trade).

1. County Medical Society brought the plan to the Chamber of Commerce—they were not aware of the problems—need for well organized community action stressed.
2. Formation of a committee from the community—objective: adequate medical service for all—action: workers
 - a. Survey of all plants (115 in the area) as to what is being done in Industrial Health. A definite need is obvious.
 - b. Community Education: established an Industrial Health Week in the community (pamphlets, radio, meetings, letters to all employers, etc.).
 - c. Employer letters announcing:
 - (availability of reference material
 - 1st. (how to set up a health plan (list of available physicians (educational methods for employees
 - 2nd. follow-up letters regarding benefits and pamphlet circulation
 - d. Personal interviews with all employers.

Results:

Decrease in absenteeism
Increase in number of health plans adopted
Increase in group health insurance
Increase in chest-film survey response and Co-operation in venereal disease control program

Advise:

Establish such a plan only through joint sponsorship of the Chamber of Commerce (a diversified committee) and the county medical society.

Paper IV. The Union Health Center Fosters Employee Health—Dr. Joseph Langbord (Medical Director, Sidney Helman Medical Center, Philadelphia).

Established as a co-operative effort with organized labor.

Handle industrial and non-industrial ambulatory illness.

Preventive, diagnostic, and specialty services.

Recent questionnaire: 9% of patients could have paid for services rendered at the clinic if he had received them through private physicians.

Voluntary payroll assessments.

Program favorably described in *Nations Business* January 1952.

Paper V. The Pittsburgh Experience in Undergraduate and Graduate Industrial Medical Education—Dr. T. Lyle Hazlett, Professor Industrial Medicine, University of Pittsburgh School of Medicine.

Undergraduate:

Compulsory—24 hours in senior year. Lectures, plant visits, clinical case discussions (controversy over most cases makes it difficult to obtain). Audiovisual aids.

Postgraduate:

A residency program (1946) 1 year at school—1 year in-plant training. Doctor of Industrial Medicine then given.

Department largely made up of men on a voluntary basis, engineers included.

Paper VI. The Industrial Medical Association and Medical Directors Clubs in Pittsburgh—Dr. D. C. Braun

Subtle influence on overall picture.

Serves as medium for exchange of ideas and as a contact group with all interested in a total industrial health program.

Paper VII. The Technique of Build-up of Industrial Health in a single community. (Williamsport)—Dr. John P. Harley

Williamsport effort commended by U. S. Chamber of Commerce as outstanding example of what can be done in a small city in fostering industrial health. (population 65,000)

Additions to Paper III:

1. Course for Industrial Nurses (1 night/wk. for 10 wks.).
2. Industrial Health Bulletin—issued periodically.
3. Periodic conferences for the community (i.e. alcoholism in industry)
4. If such a program were introduced widely, it would help to prevent compulsory federal health legislation.
5. Cost—\$250 appropriated by Chamber of Commerce.

Paper VIII. The Technique of Build-up of an Individual Industrial Health Practice—Dr. Glenn S. Everts (now Medical Director Curtis Publishing Co.)

Bottleneck in Industrial Health:

Extension of coverage to small industry that is adequate and at an expense that can be afforded.

Solution:

A full time nurse in each plant and part time services of a physician serving two to three plants as a full time industrial physician. Developed from a survey by the TB Association — plants participating in this original survey were easy to convince and requested services.

Problems:

1. Unpleasantness between the industrial physician and the man who previously took care of the patients from the small plants in an unorganized fashion.
2. If these were reassigned after plan was organized, interest declined and plans often abandoned.
3. Degree of interest of participating nurses helps or hinders.
4. Young practitioners used plan to "get going" then dropped their interest soon after.

Employers don't know the difference between a first aid station and an adequate health service; don't know where to get information.

Floor arguments:

1. Physician anticipating such a plan must go to small industry under an ethical code (Lake Co., Indiana, code does not protect the physician who takes care of accident cases in his office from the physician setting up an in-plant service).
2. Physician should not solicit—industry must come to him for an in-plant service set up after a general educational program initiated.
3. Must have the sanction of local organized medicine before setting up such a service.
4. How to centralize laboratory work and special facilities? Often omitted—limit to two visits for nonoccupational illness then refer.

REPORTS OF STATE SOCIETIES REGARDING THEIR ACTIVITIES IN INDUSTRIAL HEALTH PROGRAMS

Kentucky (Gradie Rountree, 1100 W. Broadway, Louisville)

- a. Improve small plant health programs (educational)
- b. Encourage voluntary health insurance for all workers and their families.
- c. Subjects relative to Industrial Health on State Medical Society programs (i.e. J. F. McCahan, Assist. Sec. A.M.A. Council on Ind. Health).
- d. Newspaper publicity: progress in the State in Industrial Health.
- e. Consider all proposed legislation; act as consultants to state legislature.
- f. Louisville Heart Association—part of program devoted to rehabilitation.
- g. Booklet on recommended employment standards for industrial nurses.

Michigan

- a. Annual Industrial Health Day.
- b. In-plant meetings for county medical societies.

- c. Panel of physicians to confer with State Compensation Board. Names of qualified physicians submitted to testify in compensation cases.

Indiana (Jones)

Starting out with an ethical code avoids many problems. (briefly described program—see letter sent to Mr. Barnes).

Booklet "Standing Orders for Industrial Nurses" to be published in the Indiana State Journal.

A code is "only as good as the society is good—needs guts to back it up." Have own attorney for trials and a state wide council for investigating.

Rhode Island

- a. State Law (July 1951): plant with 25 or more employees must have a first aid station and a nurse—personnel problem now so no activity as yet.
- b. Committee to investigate compensation laws appointed by Governor ("a hot potato").
- c. Rehabilitation Center financed by the State for patients injured in industry sponsored.
- d. Insist on referral of nonoccupational illness to family physician or have them choose from a list made up by the society.

Wisconsin (Dan Dorchester)

- a. Educational Program in Industrial Health. Three in-plant tours per year—one for each section of the state. Industrial nurses, insurance representatives, management, and labor invited to meetings that follow.
- b. Legislation: responsible for law governing sanitation and medical care of migrant workers.

New York

Problems confined to small plants—progress easily made in big industry and in isolated areas.

Utah

Problem:

1. Solicitation of insurance carriers by physicians, or vice versa (The "dine and dance" routine).
2. In-plant medical care for small industry.

Georgia

Small plant co-operatives developing and are supported by industry and labor. Advocates multiple health screening tests.

Ohio

Insurance by large plant self-insurance plans or sponsored by the State Industrial Commission eliminated the independent insurance carrier problem.

Sponsored recent law to establish a State Rehabilitation Center at the State University (\$300,000 appropriation).

State Medical Society group health insurance plan insures a large number of employees. Problem: how to combat the idea that "the industrial physician is hired by industry to prevent medical care and compensation"?

Minnesota

"Too few physicians want to do the 'pick and shovel' work of an adequate industrial health program."

Connecticut

The State Committee is only advisory to county medical society committees.

County Societies work actively with their local chamber of commerce (education wise).

Maine

"The laymen have taken the lead here and the medical profession has been left out."

New Hampshire, Virginia and several other states
No comments.

The Council on Industrial Health of the American Medical Association has requested the Committee (during the year) to furnish information relative to cited areas of defense production, health and medical care problems, etc., at or in: (1) Fort Bragg (Hoke and Cumberland Counties), (2) Onslow County, (3) Lenoir County, and (4) Vance County.
January 25, 1952

"The Federal Security Agency has recently designated the following areas in North Carolina as being critical housing shortage areas:

1. Camp LeJeune
2. Fort Bragg
3. Kinston
4. Townsville area (in Vance County, N. C.)

In carrying on our survey regarding 'critical areas' as regards health and medical care problems, we will appreciate it if you will advise us as to whether the above areas are engaging in defense production and also whether you anticipate health or medical care problems in these areas due to rapid build-up of population."

Sincerely yours,
J. F. McCAHAN, M.D.
Assistant Secretary, Council on
Industrial Health,
American Medical Association

The Committee's information in this connection was gleaned from the officers of the County Societies involved. A copy of this particular report is on file with the Executive Secretary of our State Society and available to you.

Generalizing, it would seem to the Chairman (and I believe concurred in by members of the Committee) that a rather specialized field has developed during the past few years within so-called organized medicine, termed "Industrial Health." We may be a part of it, more by virtue of circumstances than by foresight. Intelligent industry wishes a high type of medical care and guidance for its employees and their families. Many Medical Schools are making this specialty a part of their curricula—appreciating the demand here in preventive medicine. North Carolina has become a very pre-eminent industrial State. All the problems and issues of Industrial Health are with us. A few fine doctors are thinking on it and working at it. From what they do the best of organized medicine prospers, directly or indirectly. This has been the experience in other states, surpassing our own in pointing the way.

There is a lot of educational work yet to be done—affecting both medicine and industry. The Chairman of this Committee (in conclusion) presumes to recommend to the next administration of the State Society that the Chairman and most or all of the "Committee on Industrial Health" be appointed from among members who have a working conception of Industrial Health and who are devoting all or a large part of their time to it in practice or teaching.

March 31, 1952

"Dr. Oscar L. Miller
Miller Orthopedic Clinic
Charlotte, North Carolina
Dear Dr. Miller:

Thank you very much for sending me the copy of the committee report to the President of the North Carolina State Medical Society. It summarizes the activities of the committee clearly and concisely; I hope future committees will carry the ball and develop and encourage a constructive program in in-

dustrial health in North Carolina with the start you have given it.

I certainly agree with your last paragraph that future committees should be appointed from among members who have a working conception of industrial health. On the other hand I hope that the majority will not be made up of those in full time practice of industrial medicine. Several states have gone overboard on this point and have at times compromised organized medicine unnecessarily. I hope that Dr. MacRoy Gasque will be included in future committees as he certainly has expressed ideas which should be in excellent accord with organized medicine as a whole. He would indeed make an excellent chairman to spearhead an active program.

I greatly appreciated the opportunity to work with you and the committee. I have learned a great deal from the experience.

My best regards.

Sincerely yours,
MANSON MEADS, M.D.
Director, Department Preventive Medicine,
Bowman Gray School of Medicine"

Thanking you for your confidence in and courtesies to this Committee, I am

Respectfully,
O. L. MILLER, M.D.
Chairman
Committee on Industrial Health

[On motion, duly seconded and carried, the report was adopted.]

Committee on Legislation

Committee on Legislation met at headquarters office at 2:00 o'clock P.M. Friday, January 18, 1952. Present at the meeting were: Dr. W. M. Coppridge, Chairman, presiding; Dr. M. D. Hill, Dr. J. Street Brewer (visiting), Dr. F. C. Hubbard, Dr. Joseph F. McGowan. Also attending the meeting were Mr. John Anderson, legislation counsel, and Mr. James T. Barnes, Executive Secretary. Mr. Barnes presented a telegram from Dr. Roscoe D. McMillan indicating that an emergency had prevented his attendance and reported that Dr. Daughtridge called indicating the impossibility of his attendance. There was no information as to Dr. McPherson and Dr. Owens failure to attend although they had responded to the notice indicating that they would attend.

The Executive Secretary had prepared an agenda of ten items to guide the discussion on the basis of this agenda.

Item One—The first matter was to review the action of the Executive Council on the report presented to the Council on May 6, 1951, by Dr. J. F. McGowan of Asheville, North Carolina. This was a general review of the legislative situation prevailing during the course of the 1951 General Assembly and an outline of a suggested procedure involving a closer public relations organization and liaison with the Legislative Committee of the State Society. It particularly encompassed the evaluation of specific bills and the preparation of an advanced dossier by representatives of the respective specialties as indicated by the division of the Scientific Sections of the House of Delegates and an effort to bring about a better liaison between the official life of the State Society and headquarters office and with district medical societies and, finally, with county medical societies. There was considerable discussion and clarification by Dr. McGowan. Mr. John Anderson, in discussing the matter, indicated that there was certainly a lack of organization to the point of the meeting of the General Assembly during the previous session and the necessity for emergent organizing effort which, while effective, ran considerable risk in handling legislative subjects during 1951 and indicated that he strongly recommended

that plans be laid in advance for the Society to act upon legislation in the 1953 General Assembly. It was generally agreed that each scientific section should prepare a dossier on matters related to legislative subjects in their field and that there be designated people who could be called upon to develop information on specific legislative items. For example, in the field of Optometry there should be a special effort of Ophthalmologist and Otolaryngologist. It was the consensus of the Committee that this recommendation should be brought to the Executive Council and that the Council give specific authority to the Legislative Committee to choose individuals carefully and to nominate these to the Executive Council for either the President to appoint or for the Executive Council to authorize for the various specialty sections and that these men be relatively available and in the vicinity of Raleigh and that they be asked to serve for a period of two years. The specific nominations of the Legislative Committee are:

General Practice of Medicine and Surgery—Dr. Amos Johnson, Garland

Practice of Medicine—C. F. Strosnider, M.D., Goldsboro

Ophthalmology and Otolaryngology—Dr. V. M. Hicks, Raleigh

Surgery—Dr. Donnell Cobb, Goldsboro

Pediatrics—Dr. A. H. London, Durham

Obstetrics and Gynecology—Dr. Robert Ruark, Raleigh

Public Health and Education—Dr. J. W. Roy Norton, Raleigh

Radiology—G. W. Murphy, Asheville

Neuropsychiatry—Dr. R. T. Bellows, Charlotte

The following formal motion was enacted by the Committee: "As suggested by the action of the Executive Council on May 6, 1951, in adopting and endorsing an outline for legislative action, your legislative committee at a special meeting in Raleigh on January 18, 1952, selected the above representatives of the various specialties or sections of the Society to act as consultants and advisors to and with the legislative committee; and the above list is respectively recommended to the Council for approval with the understanding that these be appointed by authority of the Executive Council; and that they be requested to serve for a period of two years; and that they be advised by the Executive Secretary of the appointment and secure from them their individual acceptance; it further being recommended that the Executive Council reappoint or redesignate new members to serve on this legislative consultant panel in the future."

Item two of the agenda involved a letter from the Secretary of the Lenoir County Medical Society reporting a resolution enacted by that society in regard to procedures in screening mental cases for admission to the State Institution for the mentally ill. Dr. J. F. McGowan moved that this matter be referred to the Committee on Crime and Psychiatry for study and further consideration if necessary. This motion was duly seconded and carried. This recommendation is to be presented to the Executive Council as information—it being the sense of the group that the Executive Secretary should communicate the information (Lenoir County) to the Committee on Crime and Psychiatry.

Item three on the agenda dealt with the question of the outlook for legislation in the Second Session of the 82nd Congress. The Executive Secretary presented a brief of procedures and problems at hand and outlined the ordinary steps which are taken whenever action of the State Society on national legislation is indicated. The committee agreed on collaborating with the procedure of the American Medical Association and then utilizing the structure of this committee toward influencing such legisla-

tion as arises in a manner consistent with the interest of the general public health.

The prospective situation in the 1953 General Assembly was discussed briefly and it was felt that there should be an effort on the part of individual physicians at county level to query candidates on where they would stand on certain types of specific legislation which has been lodged over the years in an effort to get the candidate to inform his consultant of his stand so that they might intelligently act on his candidacy. It was the consensus of opinion of the committee that the basic science law, as a measure of control of other healing arts making enroads in the actual practice of medicine, was not a satisfactory method and that from experience in other state's legislation on the subject was not in the public interest.

It was the view of the committee that preparations should be made to oppose the philosophy of the Optometrists in seeking restrictive legislative on the referral of eye examinations to the end that there might be a sound operation of those laws which influence the eye health of the public.

Item four—There was some discussion of the Society's position in regard to the legality of sterilization procedures carried out on normal and healthy males primarily for economic reasons. On motion made, duly seconded and carried, it was the expressed sense of the committee that the medical profession should discourage indiscriminate male or female sterilization and confine this operation to those patients where there is a definite medical reason and urge that the individual physician require that a request in writing be presented to him when the operation is done.

The Executive Secretary, the Society Attorney, and the Constitutional Secretary are to study the matter and report to the next meeting of the legislative committee for consideration and action.

The Chairman of the Legislative Committee is to report to the Executive Council that the matter came up on inquiry and the committee directed that the subject be continued for study.

Item five—The Legislative Committee recommends to the Executive Council that it approve a procedure under which the president of each county medical society would be requested to organize a legislative committee composed of a minimum of three members and that the president of the county society be requested to advise the Executive Secretary at headquarters office within the immediate future so that such a committee would be in a position to function by encouraging individual members to contact declared candidates for office during the spring months of 1952.

Item six—The Legislative proposal of the North Carolina State Nurses Association in which it proposed to seek the enactment of a mandatory law in 1953 was reviewed and action was deferred by the committee.

Item seven—Communications from the A.A.P.S. were read relative to certain resolutions, but no action was taken by the Legislative Committee.

Item eight—The proposal made to the North Carolina Commission for the Blind by the North Carolina Optometry Society was noted, but action was deferred pending consideration of the proposal by the Ophthalmology and Otolaryngology group. It is to be reported to the Executive Council that the Optometry Society resolution came to the attention of the Legislative Committee along with a letter ruling from the office of the Attorney General of North Carolina which indicated that there was no statute authorizing an advisory committee such as proposed by the Optometry Society to work with the North Carolina Commission for the Blind, and it is the view of the Legislative Committee that it may be anticipated that the Optometrists will propose a bill to the 1953 General Assembly to set up

such an advisory committee composed of both professional groups. It was the sense of the Legislative Committee that this should be directed to the attention of the group on Ophthalmology and Otolaryngology and that they gather information on the subject during the intervening months and be prepared to submit clarifying information to the advantages of the officials of the General Assembly in behalf of the best interest of the general public health.

Item nine—The committee considered the position of the several North Carolina Congressmen toward certain national legislative proposals. It was the sense of the Committee that the Committee on Public Relations might build up information on the views of dissident congressmen and make an effort to encourage these toward a favorable point of view on the basis of facts and information which would indicate the best course in behalf of the public health.

Item ten—The Society Attorney, Executive Secretary, and Constitutional Secretary are to consider the development of a letter to be directed to the county society committee on legislation suggesting discreet means as to the assistance which the state office might render to these county society committees in connection with their legislative activity.

Respectfully submitted,
W. M. COPPRIDGE, M.D., Chairman
Committee on Legislation

[On motion, duly seconded and carried, the report was adopted.]

Advisory Committee to the North Carolina Medical Care Commission

Since the Society has three physician members of the North Carolina Medical Care Commission this committee stated at the last annual meeting of the Society questioned the advisability of its continuation. Its chief purpose seems to be a possible need in case there should arise a threat to the successful operation of the Medical Care Commission. For instance there may be insufficient legislative appropriation, attempts to transfer parts of its program to other departments of the Government, or to make unfavorable changes in its structure. Since such things are not likely to happen except at the time of the bi-ennial meeting of the State General Assembly there has been no need for committee action this year. If the committee is continued its members should keep informed and stand ready to respond when called upon by the legislative committee or the Medical Care Commission.

JACOB H. SHUFORD, JR., M.D.
Hickory, N. C.
DONNIE H. JONES, JR., M.D.
Princeton, N. C.
JOHN A. PAYNE, 3rd, M.D.
Sunbury, N. C.
JOHN MORRIS, M.D.
Morehead City, N. C.
H. L. BROCKMANN, M.D., Chairman
High Point, N. C.

[On motion, duly seconded and carried, the report was adopted.]

Committee on Postgraduate Medical Study

Many opportunities are now available to the profession in North Carolina for postgraduate instruction. In addition to those exercises scheduled throughout the year at the teaching institutions, the following annual courses and symposia should be mentioned:

The Southern Pediatric Seminar at Saluda
The New Hanover County Symposium
The Symposium of the North Carolina Heart Association at Winston-Salem sponsored by the Winston-Salem and Forsyth County Heart Association

The Duke Medical Symposium—last year held on Saturdays in cooperation with the North Carolina Academy of General Practice

The Duke Medical School Postgraduate Courses—March and June

The Heineman and the Matheson Foundation Lectures in Charlotte on alternate years

The Raleigh Academy of Medicine Symposium

The Watts Hospital Medical and Surgical Symposium

The Greensboro Academy of Medicine Symposium
The University of North Carolina School of Medicine Extension courses held this past year at Morganton, Goldsboro, New Bern, Raleigh, Elizabeth City, Ahoskie, Edenton, Gastonia and Salisbury

At the teaching hospitals there are weekly conferences, clinical and clinicopathologic, ward rounds and frequent lectures by distinguished visitors to which the profession are all cordially invited. In addition, doctors are welcome to come to each of the medical schools for varying lengths of time to work in such fields as they may wish.

While it is true that these symposia are well attended, are of real value, and should be continued and even extended, nevertheless the Committee recommends that these programs, in which those attending are largely passive, be supplemented by exercises in various community hospitals and in the teaching institutions in which there is more active participation by the physicians. It is believed that the best postgraduate teaching, as undergraduate, can still be done at the bedside or in a clinic with patients.

Consequently, the Committee on Postgraduate Education would like to recommend:

1. That all scientific programs and symposia now given in the state be commended for their services and be continued.
2. That, in addition, in the future the Committee on Postgraduate Education consider the formation of a central bureau of speakers in various branches of medicine who would be available on invitation to spend a day or portion of a day conducting ward rounds, clinics, or seminars at hospitals in various parts of the state for physicians in the surrounding area. It is felt that such a committee should work closely with committees of the medical schools concerned with postgraduate instructions.
3. That the State Medical Journal devote one page each month to a schedule of postgraduate exercises throughout the state, and that the meetings of national and regional medical societies be noted also in order to avoid conflicts so far as possible.
4. That all physicians are invited to attend and participate in clinical conferences, ward rounds, and all teaching exercises at the three medical schools.

The Committee feels that the promotion of a more comprehensive postgraduate medical education program in the state is of considerable value in the Society's public relations.

Respectfully submitted,
W. A. ANTHONY, M.D.
W. C. DAVISON, M.D.
V. H. DUCKETT, M.D.
R. L. McMILLAN, M.D.
W. R. BERRYHILL, M.D.,
Chairman

[On motion, duly seconded and carried, the report was adopted.]

Committee on Publications

The Committee held its annual meeting in Pinehurst, Wednesday, May 9, 1951, and received the regular report of the Editor and Business Manager

which were in proper order and adopted. Dr. G. Westbrook Murphy of Asheville assumed the Chairmanship of the Editorial Board in line with his election to that position.

The Journal was published consistently through the year 1951 and all issues appeared to have attained excellence in format and content. Through the year the scientific material has evinced the usual interest and commendation from physicians at home and abroad. There has been no changes in the personnel of editing or management.

Respectfully submitted,
M. D. HILL, M.D., Chairman
Committee on Publications

[On motion, duly seconded and carried, the report was adopted.]

Committee on Tuberculosis

I have scarcely anything to report, except to say that we still have tuberculosis with us, but the mortality rate is still falling slowly. We are in hopes before too much longer to have sufficient beds in the state to take care of and isolate cases much earlier than we are able to do at present. The bed capacities at the State Sanatoria are being increased considerably.

There are also some new synthetic chemical compounds, which everyone has heard about through the press recently. Fortunately these compounds do have some effect on tuberculosis and from what we can gather it will be about as good as streptomycin. Whether it will be as good over a long haul, we, of course, cannot say. These drugs, of course, have not been turned loose by the Food and Drug Administration, and have not been thoroughly tested yet. There is certainly no hope, however, that these will eradicate the disease or change the method of treatment drastically. People will still need to go to the sanatorium, and will probably continue to need all forms of collapse and surgical procedures that are in vogue now.

It is most encouraging, however, that some one has finally found a chemical compound that does do something to the tubercle bacillus. So far as we know now it does not do any permanent damage to the host. We certainly can continue to hope that one of these days, some one will come up with the real drug that will be bactericidal for the tubercle bacillus and rid the host of all infection.

Respectfully,
M. D. BONNER, M.D., Chairman
Committee on Tuberculosis

[On motion, duly seconded and carried, the report was accepted.]

Committee on Scientific Work

With due consideration to the suggestions of the President of the Society, and in cooperation with the Scientific Sections, a balanced program has evolved containing a varied interest in scientific subjects. The format of the official program was in the hands of the printer in late March and should be dispatched to the membership quite in advance of the Annual Session date. Much responsibility has devolved upon Headquarters Office in the negotiations for program participants and in the great detail of arrangements incident to the program and the speakers and it is commended to the Fellows of the Society and the profession in the State.

Respectfully,
M. D. HILL, M.D., Chairman
Committee on Scientific Work

[On motion, duly seconded and carried, the report was adopted.]

Committee on Loyalty Group Insurance

This committee has consulted on several occasions on matters cognizant to the committee and has

approved several riders and changes in policy contracts of different insurance companies.

We again point to the value of participating in group loyalty policies that are approved by this Society. It should be recalled that any insurance company which is licensed by the State can sell individual insurance and solicitation can be made by mail, but this does not guarantee competence or performance. At present there are three companies writing the majority of the doctors. One has submitted proposals and plans which have been approved, the other has submitted a plan which has been approved and the third has not made any contact with this committee.

The major grievances have come regarding the latter company.

It is the committee's suggestion that the Chairman of this committee might be selected from the group of Raleigh doctors. There are three Insurance Companies which have Home Offices there and the members of their Medical Departments have ready access to the Commission of Insurance Office.

Respectfully submitted,
R. A. ROSS, M.D., Chairman
R. L. LYDAY, M.D.
W. A. HOOVER, M.D.
Committee on Loyalty Group Insurance

[On motion, duly seconded and carried, the report was adopted.]

Committee on Crime and Psychiatry

The former chairman of this committee, Dr. Maurice H. Greenhill, has turned over all the known records of this committee. Dr. Greenhill, who has left this State, gives the following advice in a letter dated February 6, 1952:

"In turning over this material and now knowing something about the subject as it relates to this State, I would like very much to see some definite action as the next step in a working relationship with the State Judicial Council and the North Carolina Bar Association. Nothing practical can be done without their help. I would rather see that kind of action than several years more of discussion and talking by the Committee on Crime and Psychiatry, for, from my past experience, we have already gone through a lot of that."

Since the end of World War II, this committee has changed name, membership, and subject of consideration to quite an extent. Dr. Greenhill has spent much time and made great efforts to focus on goals and bring results, but as he indicates in the statement above, the hours of discussion have brought forth very few concrete accomplishments. Dr. Greenhill has had advice from the Duke University School of Law, and he has had contacts with the Attorney General of the State and other people in strategic and interested positions.

A great many topics related to crime and psychiatry have been given consideration within the limitations of this committee. A few of the problems taken up may be listed as follows.

1. Procedures Relating to Expert Testimony by Psychiatrists.
2. Procedures for Examination of Prisoners Suspected of Mental Disorders.
3. Factors in the Determination of Guilt.
4. Commitment Procedures.
5. The Sexually Deviated Offender.

Many other subjects could be mentioned that have been or could be brought within the scope of this committee. The expression used above, "limitations of this committee," brings us to a focus of the considerations suggested by Dr. Greenhill. No group of doctors can come anywhere near a final decision in any of these related fields. They are all so bound up with law, legislative procedure, sociological factors, mores, and even theology, that we, as doctors

or specialists in psychiatry, can only contribute our small part.

Attention is called to the fact that several other organizations in our State have committees working along very similar lines and rather independently but with about as much success. An incomplete list of such organizations is as follows:

1. North Carolina Judicial Council
2. North Carolina Council on Mental Health
3. North Carolina Neuropsychiatric Association
4. North Carolina Mental Hygiene Society
5. North Carolina Conference on Social Work
6. North Carolina Bar Association
7. Medical Society of the State of North Carolina

Others concerned, such as the Board of Control of the State Hospitals, the State Board of Education, the State Board of Public Welfare, the State Board of Health, the Attorney General's office, the State Parent-Teacher Association, the State Organization of County Commissioners, the Prison Association, etc., might be added to the list.

A few doctors meeting in a few off hours once or twice a year cannot begin to formulate detailed recommendations on any one aspect of such involved problems. In view of this, attention is called to Governor Scott's suggestion concerning the appointment of a commission to study court procedure. However, to study court procedure alone would be only a partial step, and it is suggested that such study be greatly broadened.

In 1935, a commission to study mental health in North Carolina was appointed by Governor Ehringhaus. Funds for the study were granted by the Rockefeller Foundation, and a year was spent by professional people, resulting in a volume of findings and recommendations. This volume can serve as a background for another study that will bring the findings up to date and result in many clear-cut recommendations for the future.

Accordingly, it is recommended that the Legislature approve the appointment of a similar commission to make a broad study of all aspects of mental health. Due emphasis should be given to "crime and psychiatry," court procedure, and the possibility of further steps in the prevention of crime and delinquency, but the goal should be the much broader one of mental health and its maintenance. This recommendation should have the co-ordinated backing of the various organizations mentioned above. It is believed that financial support for the necessary professional personnel in such a study may be obtained from some foundation or some other source that is interested in mental health.

J. LLOYD THOMPSON, M.D.,

Chairman

Committee on Crime and Psychiatry

[On motion, duly seconded and carried, the report was adopted.]

Committee on Coroner System

This Committee met on November 16, 1951, and the following members were present: Dr. Wiley D. Forbus, Dr. J. Grover Raby, Dr. Kenneth M. Brinkhous, and Dr. Hershel C. Lennon. The object of the meeting was to plan a campaign for getting before the Legislature at its next session and before the public our proposed statute providing for the establishment of a medical examiner's system in the State. The Committee organized itself into groups, each group being assigned responsibility for contacts with a variety of groups of people and organizations within the State, including the Police Association, the Bar Association, the organization of the county commissioners, the Sheriff's Association, the county medical societies, the Institute of Local Government, the newspaper editors, the solicitors, and others.

The several sub-committees have been actively at work during the past twelve months. As a result of this activity it appears that we shall be able to bring to bear upon the next Legislature considerable influence favoring the enactment of our proposed legislation.

The Committee will continue its activity and will be prepared at the opening of the next session of the Legislature to have our proposed statute introduced within the first few days of the session.

As of this date the appropriation of the Society made for the support of the activities of the Committee has not been drawn upon, and it appears that no additional appropriation will be required. It will, however, be necessary to continue the existing financial support of the Committee.

WILEY D. FORBUS, M.D., Chairman
Committee on Coroner System

[On motion, duly seconded and carried, the report was adopted.]

Committee on Maternal Welfare

The Committee on Maternal Welfare would like to express its regret over the death of Dr. Oren Moore, who had so much to do with the initiation of the maternal welfare program in this State. His unflinching support in the work of this Committee, his cooperation at those times when the Committee felt it necessary to call upon him and his unceasing efforts to spread the philosophy of the Committee throughout the State has made his loss a very serious one.

The radio programs produced by the Committee have now been distributed to nearly every County Society in the State having a radio station.

The data received on each maternal death in the past has been recorded by hand on cards and appropriately cross indexed. In December, 1951, this system was converted to the IBM punch card system, including considerable more data than has previously been recorded. The first one thousand consecutive cases reported to the Committee have now been so indexed and a preliminary analysis of these cases has been completed. A Table is given below:

MATERNAL MORTALITY SURVEY

First 1,000 Cases

1946 — 1951

Primary Cause of Death	No.	Place of Death		Inadequate Prenatal Care	Indigent	Inadequate Consultation	(Preventable)
		Hosp.	Home				
Toxemia	264	193	71	230	150	164	256
Hemorrhage	259	191	68	209	167	175	256
Embolism	74	47	27	47	40	53	32
Infection	73	66	7	63	26	33	73
Cardiac	46	26	20	35	29	27	43
Anesthesia	25	24	1	14	11	12	25
Other Obstetric	103	75	28	79	48	48	82
Non-Obstetric	112	73	39	73	61	53	28
Information Insufficient for Analysis	44						
Total Obstetric Deaths						844	
Total Non-obstetric Deaths						112	
Insufficient Information for Analysis						44	
							1,000

It became apparent that additional information would be necessary in order to properly evaluate these statistics. As a consequence a questionnaire was sent to each hospital in the State regarding the

availability of blood and plasma, staff regulations, requirement, if any, for consultation, number of maternity beds available for white, colored and Indian patients, and the availability of laboratory services. In addition, a spot check is being made of physicians throughout the State regarding the policies in their area regarding hospitalization of toxemia patients and the use of version and extraction.

The present plan is to break down each of the main groups, (i.e., hemorrhage, toxemia, etc.), into its component problems and study them separately. When all the data has been assembled it will be forwarded for study to each member of the Committee in an effort to determine what active steps the members of the Medical Society can take to reduce the maternal mortality. When the study on each individual problem is completed and suggestions for reducing the preventable deaths are worked out, it is planned to prepare a number of short articles concerning the matter to be published in the State Medical Journal.

The Committee was pleased to note that in 1948 the State of North Carolina ranked 41st in the national mortality ratings. In 1949, the maternal mortality rate was so lowered that it enabled the State to move up to the 35th position. Every state in the nation, of course, had substantial reduction in the rate.

Two hundred four maternal deaths were reported to the Committee in 1951, of which 69 were white, 133 were colored, and two were Indian.

The following is a statement of the financial condition of the Committee on Maternal Welfare for the year 1951:

Balance—January 1, 1951	\$	95.40	
Receipts:			
North Carolina Medical Society	\$	900.00	
P.D.C. (Salary Supplement)		825.00	1,725.00
Total Receipts and Balance.....			\$1,820.40
Disbursements:			
Salary (Secretary)	\$	1,800.00	
Office Supplies and Postage		219.65	2,019.65
Balance—December 31, 1951 (overdraft)....			(\$199.25)

The members of the Committee will welcome suggestions and criticisms from the County Societies and from the members of the Medical Society of the State of North Carolina concerning further work which may be undertaken by the Committee.

Respectfully submitted,
 FRANK R. LOCK, M.D., Chairman
 GLENN E. BEST, M.D.
 AVON H. ELLIOT, M.D.
 ERNEST W. FRANKLIN, JR., M.D.
 HUGH A. McALLISTER, M.D.
 BURNICE E. MORGAN, M.D.
 GEORGE O. MOSS, M.D.
 ROBERT A. ROSS, M.D.
 JOHN C. TAYLOE, M.D.

[On motion, duly seconded and carried, the report was adopted.]

Report of Physician Members of the North Carolina Medical Care Commission

Previous annual reports by the three Physician Members of the Medical Care Commission who represent the Medical Society have presented the history, organization, over-all program, and the accomplishments of the Medical Care Commission up to July 1, 1951. The cumulative results to that date included 98 construction projects, the expenditure

or encumbrance of \$47,742,965.63, and the addition of 3,539 new hospital beds.

During the current year that began July 1, 1951, the hospital construction program has continued to make gratifying progress. Seventeen new construction projects have been scheduled. They increase the total number of the Commission's projects to 115 to March 15, 1952, of which 66 are local general hospital projects in 59 counties; 20 are nurses' homes; 21 health centers; and eight State-owned hospital buildings.

Since July 1, 1951, eight local general hospital projects that added 571 new beds have been completed, making a total of 31 hospital projects completed and 1,743 new beds added. The eight hospital projects completed since July 1, 1951, are listed below by date of completion, county, name of hospital, city, and the number of new beds added:

7-1-51—Warren, Warren County Hospital, Warren—35
9-1-51—Burke, Grace Hospital, Morganton—40
9-25-51—Gaston, Gaston Memorial Hospital, Gastonia—100
10-15-51—Cleveland, Shelby Hospital, Shelby—36
10-26-51—Rutherford, Rutherford Hospital, Rutherfordton—70
11-11-51—Johnston, Johnston Memorial Hospital, Smithfield—100
2-22-52—Cabarrus, Cabarrus County Hospital, Concord—130
3-5-52—McDowell, Marion General Hospital, Marion—60. A total of 571 new beds added.

Of the twenty-five hospital projects which were under construction on March 15, 1952, the six listed below are scheduled to be completed before June 30th. The list includes the county, name of hospital, city, and number of new beds added.

Bertie—Bertie County Memorial Hospital, Windsor, 50
Bladen—Bladen County Hospital, Elizabethtown, 50
Richmond—Richmond County Hospital, Rockingham, 50
Wayne—Wayne County Memorial Hospital, Goldsboro, 100
Wilkes—Wilkes General Hospital, N. Wilkesboro, 100
Yadkin—Lula C. Hoots Memorial Hospital, Yadkinville, 30. For a total of 380 new beds added.

Ten local general hospital projects that are in planning stages were approved up to March 15, 1952. They increase to 66 the hospital projects and to 3,862 the new hospital beds in the Commission's program for the period July 1, 1947, to March 15, 1952. The 66 hospital projects include 36 new hospitals and 30 expansion projects.

Since July 1, 1951, eleven county health centers have been completed in the counties of Beaufort, Caswell, Caldwell, Halifax, Hertford, Moore, Robeson, Rutherford, Sampson, Tyrrell, and Martin. Six health centers were under construction on March 15, 1952, and four others were authorized.

Eight nurses' homes have been completed since last July 1, increasing the total of those completed to 14. At present, one nurses' home is under construction, and five others have been authorized and are being planned.

The Commission, since July 1, 1951, allocated \$500,000 of federal funds toward the cost of a 100-bed Tuberculosis Sanatorium at Chapel Hill, the total cost of which considerably exceeds \$1,000,000. The building is now under construction.

The following table combines the projects completed since July 1, with those previously completed and also includes those under construction or authorized, up to March 15, 1952.

Projects	Hospitals	Health Centers	Nurses' Homes	State- Owned	TOTAL
Completed prior to July 1, 1951	23	0	6	4	33
Completed July 1, 1951- March 15, 1952	8	11	8	3	30
Total Completed Projects, March 15, 1952	31	11	14	7	63
Under Construction, March 15, 1952	25	6	1	1	33
In Planning Stages, March 15, 1952	10	4	5	0	19
TOTAL	66	21	20	8	115

During the five years of its construction activities, 1947-1952, the Commission has aided or scheduled aid for 115 projects that involved a cost approximating \$51,238,500. Of this sum, Hill-Burton Federal Funds amounted to \$20,592,160; State funds to \$11,374,460; and local funds to \$19,271,880. The Commission received \$3,715,001 of Federal funds for the current fiscal year. The last Legislature reduced the State appropriation for hospital construction to the Commission from \$3,413,486 for each year of the 1949-51 biennium to \$1,000,000 per year for the 1951-53 biennium.

The 115 construction projects of the Medical Care Commission have been widely distributed over the entire State. There are now only 18 counties without hospital facilities. Five of these counties have health centers built or programmed. Two of these counties, Madison and Yancey, have been made a part of a four-county hospital district to be served by the new district hospital at Asheville. Moreover, Northampton County has been included in a two-county district with Hertford, and both are served by the new hospital at Ahoskie.

Other activities of the Commission have been continued. The Indigent Care Program was affected by two acts of the 1951 General Assembly. Approved privately-owned hospitals were made eligible to participate in the program for indigents effective April 1, 1951. Up to March, 1952, 20 privately-owned hospitals received payments. These and 94 previously approved non-profit hospitals make a total of 114 hospitals participating in the Commission's Indigent Care Program.

The 1951 Legislature also authorized the Commission to pay \$1.50 per day toward the hospital care of certified indigents, effective July 1, 1951. Responsibility for three categories of indigents, (1) the aged, (2) dependent children, and (3) the permanently and totally disabled, was transferred by the Legislature to the State Department of Public Welfare.

During the calendar year 1951, the Commission paid \$233,612 to hospitals toward the cost of the hospital care of 17,328 medically indigent patients.

Between July 1, 1951, and December 31, 1951, hospital licenses were issued to 37 hospitals not previously licensed by the Medical Care Commission. These and those previously licensed make a total of 152 hospitals containing 11,802 beds that were licensed during the calendar year 1951, and licenses were renewed for all of them in January, for the year 1952.

Although the small loan fund of \$50,000 provided by the 1945 Legislature was fully encumbered before July 1, 1951, to 19 students, the Medical Care Commission continues to receive many applications for Student Loans which it is unable to grant. Unless the 1953 Legislature appropriates additional funds for the program, only an occasional new loan

can be made in the future as funds are repaid by students.

Respectfully submitted,
J. STREET BREWER, M.D.
Roseboro, N. C.
WILLIAM M. COPPRIDGE, M.D.
Durham, N. C.
HARRY L. JOHNSON, M.D.
Elkin, N. C.

[On motion, duly seconded and carried, the report was adopted.]

Committee on Services and Fees for Home Town Medical Care of Veterans

The Committee's last meeting was held December 12, 1951, at the Hotel Robert E. Lee, Winston-Salem, North Carolina. Meeting with the committee were Dr. Fred C. Hubbard, President, Mr. James T. Barnes, Executive Secretary, and Mr. K. G. Beeston, Hospital Saving Association, Director of the Home Care Program. Reports were received from Mr. Beeston on the administrative program and from Mr. Barnes on a national meeting of VA officials and persons representing various State Medical Associations interested in VA medicine under the intermediary system. Detailed diagnostic and geographic reports were submitted by Mr. Beeston in the form here attached.

The following subjects were reviewed and discussed:

1. Cortisone and ACTH therapy: The previous action of the committee on this subject was reviewed. The committee decided that the establishment of the need for and dosage of Cortisone and ACTH therapy was definitely a VA Hospital function. It was felt that the announcement published in the *North Carolina Medical Journal* was adequate and proper. The committee agreed that therapy with these drugs should continue under the same restrictions and VA regulations limiting initial treatment and establishment of dosage to hospitalized veterans.

2. The committee passed a unanimous resolution opposing the increasing VA care of non-service connected cases in VA hospitals. To be eligible for admission to a VA hospital for non-service-connected illness, the veteran must sign a pauper's oath stating that he is unable to pay for treatment himself. The committee favors continuation of this type of hospitalization provided the veteran is certified eligible by a properly constituted social service agency. We also oppose the practice of federally subsidized hospitals collecting insurance benefits from any hospitalization insurance policy that the veteran may have purchased himself. The committee therefore offers the following resolution for the consideration of the Executive Council and/or the House of Delegates:

RESOLUTION

WHEREAS VA hospitals in North Carolina have established a definite public policy of accepting non-service-connected disability cases among the veterans, and

WHEREAS the Veterans Administration Hospital at Oteen has asked our Hospital Saving Association for insurance benefits on one of their policy holders, and

WHEREAS, such practice places the government controlled and subsidized hospitals and doctors in competition with the private hospitals and practitioners;

THEREFORE BE IT RESOLVED that this committee strongly favors the continuation of the policy of admitting all service-connected disability and charity non-service-connected disability cases properly certified by local welfare agencies to Veteran Administration hospitals.

BE IT FURTHER RESOLVED that the committee disapproves of insurance benefits under any policy being paid to Veterans hospitals.

BE IT FURTHER RESOLVED that copy of this resolution be sent to each Representative and Senator of the State of North Carolina, to the Veterans Administration National Office, American Hospital Association, American Medical Association, each State Medical Society, and the North Carolina Insurance Commissioner.

The committee has since established the fact that the Blue Cross-Blue Shield plans of North and South Carolina and the majority of commercial insurance companies in the Carolinas do not provide benefits in VA hospitals, although this practice is reported to be widespread in other states.

The committee resolved that adequate VA hospitals should be established for care of disabilities incurred during military service under the highest standard of professional care, particularly for tuberculosis, psychiatric and chronic conditions. This resolution is to be drawn up and distributed to State Medical Society, A.M.A., etc.

3. Administrative Procedures — Mr. Beeston reported that changes had been made to provide the physician a copy of the VA authority for the physician's office records. Also that request forms providing a carbon copy for the physician's record were available. In the near future, Hospital Saving Association will advance payment twice a month to reduce the lag between the time the physician reports treatment and the time he receives payment. Hospital Saving Association reported close cooperation with other states providing home town care to veterans, particularly Michigan and California. The Association promised continued effort to hold red tape to a minimum and to consult with the committee in the event of significant changes or developments.

4. The committee determined to issue periodic news bulletins to members of the State Medical Society with the following objectives:

- a. To reiterate the principles of free choice home town care to service disabled veterans.
- b. To inform physicians as to the technical requirements in providing adequate clinical records on their treatment reports.
- c. To explain certain limitations in administrative procedure imposed by government accounting regulations and laws.
- d. To improve coordination and exchange of medical information between the VA, consultant specialists, and the family physician.
- e. To announce new developments affecting veterans, physicians, or administrative changes.

5. It was reported that approximately 2,000 members of the Medical Society are participating in the Home Care Program. This was felt to be the great majority of physicians in active practice and a favorable factor in making free choice of physicians a reality.

6. New therapeutic procedures of minor importance, which were offered for consideration as additions to the fee schedule, were held to be of dubious or untried value. No action was taken on these items although they may be authorized as unscheduled items. It was felt that adding these to the schedule would be construed as official endorsement and the committee did not wish to encourage use of the proposed procedures.

7. Mr. Barnes reported his attendance, (in Atlantic City at the A.M.A.), of a meeting of various agencies relating to Veterans' care as follows:

Suggested Conclusions (for North Carolina):

1. Perhaps emphasis should be given to a modification of the existing five year old fee schedule better related to OPC experience and private practice costs of the present.

2. Explore the true economics of the administration on an intermediary basis compared to other methods of providing the essential services.
3. Seek any indication for the extension of the volume of commitments to effect a reduced costs ratio in administration.
4. Make an effort to curry favor of the American Legion and other veteran groups on the basis of a true evaluation of the efficiency of intermediaries.
5. Seek improvement in the administration of the program and services at all levels and particularly as to the participation of the physician.

He later reported the following:

Advanced report of the actions of the American Medical Association at the Clinical Sessions December 4-7, 1951, indicates that the Shoulders Plan was reintroduced to consideration of the Association providing that the VA contract for and pay for membership in voluntary health service plans to cover veterans with non-service connected disabilities and who are unable to pay for the medical care essential to them. A recommendation was adopted to appoint a special committee to study the Shoulders Plan and other aspects of the veteran's care. The committee is directed to consult hospitals, insurance, veterans, and other interested organizations in arriving at its conclusions.

Following the meeting of the committee and associates, a joint dinner meeting was held with representatives of the Veterans Administration, including Dr. R. M. Cullison, Chief Medical Officer of the VA Regional Office, members of his professional staff, and Dr. W. C. Earl, Chief, Professional Services, VA Area Office in Atlanta, Georgia. With the Chairman serving as moderator, a round table discussion was held with the following results:

1. The VA doctors were requested and urged to accomplish the following:

- a. Provide prompt action on physicians' requests for treatment authorities.
- b. Provide prompt service in establishing service connection.
- c. Eliminate the need for multiple copies of medical reports from family physicians.
- d. Send to the local family doctor accurate extracts of military and hospital records to guide him in treatment.
- e. To have compensation rating examinations made by VA staff physicians whenever possible to avoid the awkward situation of having the family physician influence pensions.
- f. To eliminate having a veteran's medication or course of treatment changed by a VA staff physician without full explanation and consultation by letter with the family physician.

2. Emphatic opposition was expressed by the committee to the VA doctors on establishment or operation of VA treatment clinics. At the same time the committee favored VA evaluation centers to conduct compensation rating examinations and to provide consultant services of specialists to the family physician in the management of difficult cases.

It was felt that this joint meeting was constructive and cooperative and that such meetings should be held annually.

The committee felt that the present mobilization program, the Korean War, plus the present 21 million veterans have made "Socialized Medicine" a present reality for a major segment of the population. The committee wishes to express grateful appreciation to the late Dr. Oren Moore and to Mr. E. B. Crawford for their foresight and major efforts to limit government medical care to service incurred disabilities by establishing a positive program to provide the best medical care to qualified veterans in their home town.

This report was adopted by the Executive Council on January 27, 1952.

**MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA
V. A. HOME CARE PROGRAM**

**DIAGNOSTIC SUMMARY
(Period July 1950 through June 1951)**

<i>Type of Treatment</i>	<i>Examinations For Compensation Purposes — Amount</i>	<i>Treatment Amount</i>	<i>Total Amount</i>	<i>Percentage</i>
0039 Psychiatric Examinations	\$16,200.00	\$ 4,810.00	\$ 21,010.00	
0040 Neurological Examinations	1,620.00	145.00	1,765.00	
0053 Psychiatric Treatment	5.00	12,025.00	12,030.00	
0054 Neurological Treatment				
Other				
TOTAL	\$17,825.00	\$ 16,980.00	\$ 34,805.00	16.56%
100 Abdominal Surgery		1,620.00	1,620.00	
TOTAL		1,620.00	1,620.00	.78%
200 Amputations				
TOTAL				
400 Dislocations				
TOTAL				
501 Dermatological Examinations	\$ 341.00	\$ 485.00	\$ 826.00	
502 Electrocardiograms and interpretation	2,472.00	220.00	2,692.00	
503 Examination, Eyes, Nose, Throat	1,812.00	841.00	2,653.00	
504 Ears and Audiometric	1,190.00	340.00	1,530.00	
505 Ears and Caloric or Barany	40.00	10.00	50.00	
506 Eyes	3,795.00	1,031.00	4,826.00	
507 Eyes and refraction	300.00	983.00	1,283.00	
508 Eyes, ears, nose and throat with refraction	915.00	180.00	1,095.00	
509 Genito-urinary Examination	445.00	190.00	635.00	
510 Gynecological Examination	5.00		5.00	
511 Heart and Electrocardiogram	300.00	60.00	360.00	
512 Heart and Lungs	725.00	245.00	970.00	
516 Orthopedic	495.00	785.00	1,280.00	
517 For Hospitalization	18.00	209.00	227.00	
518 General Physical Examination	4,293.00	2,545.00	6,838.00	
519 Proctoscopy	45.00	60.00	105.00	
520 General Surgical	245.00	70.00	315.00	
521 Ventriculography				
Other	10.00		10.00	
TOTAL	\$17,446.00	\$ 8,254.00	\$ 25,700.00	12.22%
600 Compound Fractures		\$ 100.00	\$ 100.00	
TOTAL		\$ 100.00	\$ 100.00	0.05%
700 Simple Fractures		\$ 200.00	\$ 200.00	
TOTAL		\$ 200.00	\$ 200.00	0.09%
803 Biopsy	20.00	30.00	50.00	
807 Deep Abscess				
808 Superficial Abscess		15.00	15.00	
814 Tumor or Cyst, deep		25.00	25.00	
815 Tumor or Cyst, superficial		30.00	30.00	
816 Varicose Veins, injection				
817 Varicose Veins, surgery—one				
818 Varicose Veins, surgery—two				
8— Other general surgery				
TOTAL	\$ 20.00	\$ 100.00	\$ 120.00	0.07%
900 Joint Resection				
TOTAL				
1001 Cultural Examinations, fungi	30.00	80.00	110.00	
1004 Smear, Pus or Exudate		1.00	1.00	
1005 Cultural, Pus or Exudate		55.00	55.00	
1 — Other Bacteriological Examinations	6.00	31.00	37.00	
TOTAL	\$ 36.00	\$ 167.00	\$ 203.00	0.10%
Blood 1009 through 1043				
1015 Blood Smear for Malaria	\$ 4.00	\$ 8.00	\$ 12.00	
1018 Complete Chemical				
1025 Dextrose	51.00	969.00	1,020.00	
1026 Total Erythrocyte Count (red)	50.00	32.00	82.00	
1028 Hemoglobin	52.00	56.00	108.00	
1030 Differential Leukocyte Count		4.00	4.00	
1031 Total Leukocyte (white)		24.00	24.00	
1032 Complete Counts	365.00	827.00	1,192.00	
1033 Non-Protein Nitrogen		51.00	51.00	
1038 Sedimentation Rate	36.00	80.00	116.00	
1039 Estimation of Sugar Tolerance	10.00		10.00	
Other	15.00	23.00	38.00	
TOTAL	\$ 583.00	\$ 2,074.00	\$ 2,657.00	1.27%

<i>Type of Treatment</i>	<i>Examinations For Compensation Purposes — Amount</i>	<i>Treatment Amount</i>	<i>Total Amount</i>	<i>Percentage</i>
Feces 1044 through 1046				
1044 Cultural examinations of feces	\$ 15.00	\$	\$ 15.00	
1045 Fat in Feces				
1046 Parasites and Ova				
Pathological				
1047 Autopsy				
1048 Tissue Examinations	\$ 5.00	\$ 15.00	\$ 20.00	
TOTAL	\$ 20.00	\$ 15.00	\$ 35.00	0.01%
1049 Skin Tests	\$ 25.00	\$ 526.00	\$ 551.00	
1050 Tuberculin				
TOTAL	\$ 25.00	\$ 526.00	\$ 551.00	0.27%
Spinal Fluid 1051 through 1058	\$ 23.00	\$	\$ 23.00	
TOTAL	\$ 23.00	\$	\$ 23.00	0.01%
Sputum 1059 through 1064				
1059 Tubercle Bacillus, plain smear	3.00	9.00	12.00	
1060 Tubercle Bacillus, (concentration method)		10.00	10.00	
1064 Routine chemical including test meal	17.50	15.00	32.50	
Other		15.00	15.00	
TOTAL	\$ 20.50	\$ 49.00	\$ 69.50	0.03%
Urine 1065 through 1077				
1065 Routine chemical examination	96.00	863.50	959.50	
1066 Chemical and microscopical	46.00	498.00	544.00	
1069 Cultural examination		5.00	5.00	
Other		5.00	5.00	
TOTAL	\$ 142.00	\$ 1,371.50	\$ 1,513.50	0.72%
Miscellaneous Examinations				
1078 Animal inoculations				
1079 Preparation of autogenous vaccine		704.50	704.50	
1080 Basal	5.00	15.00	20.00	
TOTAL	\$ 5.00	\$ 719.50	\$ 724.50	0.34%
Miscellaneous				
1101 Blood Transfusions	\$	\$ 75.00	\$ 75.00	
1102 Non-Surgical Drainage of Gall bladder				
1103 Electrocardiogram	\$ 6,723.00	\$ 145.00	\$ 6,868.00	
1106 Injection of Alcohol				
1107 Intravenous injections		415.00	415.00	
1109 Application plaster cast, thighs and hips				
1110 Application plaster cast, thigh and leg				
1111 Application plaster cast, torso				
1112 Application plaster cast, torso and hip				
1113 Application plaster cast, entire body				
1114 Injections		216.00	216.00	
TOTAL	\$ 6,723.00	\$ 851.00	\$ 7,574.00	3.60%
1200 Neurosurgery	\$ 10.00	\$ 175.00	\$ 185.00	
TOTAL	\$ 10.00	\$ 175.00	\$ 185.00	0.08%
1300 Nose and Throat				
TOTAL		\$ 255.00	\$ 255.00	
1400 Obstetrics		\$ 30.00	\$ 30.00	
TOTAL		\$ 30.00	\$ 30.00	0.01%
1500 Ophthalmology		\$ 65.00	\$ 65.00	
TOTAL		\$ 65.00	\$ 65.00	0.03%
1600 Orthopedic		\$ 250.00	\$ 250.00	
TOTAL		\$ 250.00	\$ 250.00	0.12%
1700 Otology		\$ 5.00	\$ 5.00	
TOTAL		\$ 5.00	\$ 5.00	0.002%
1800 Proctology		\$ 80.00	\$ 80.00	
TOTAL		\$ 80.00	\$ 80.00	0.03%
1901 Bronchoscopy		\$ 120.00	\$ 120.00	
1907 Lobectomy		445.00	445.00	
1915 Pneumoperitoneum		13,635.00	13,635.00	
1917 Pneumothorax		5,790.00	5,790.00	
Other		562.50	562.50	
TOTAL	\$	\$ 20,552.50	\$ 20,552.50	9.77%
2000 Traumatic Wounds				
2001 Incised, minor procedure		35.00	35.00	
2002 Lacerated		191.00	191.00	
2003 Punctured		9.00	9.00	
TOTAL	\$	\$ 235.00	\$ 235.00	0.12%
2100 Urology				
2101 Genito-urinary examinations	\$ 840.00	\$ 960.00	\$ 1,800.00	
2115 Urethral stricture, dilation	5.00	395.00	400.00	
Other		75.00	75.00	
TOTAL	\$ 845.00	\$ 1,430.00	\$ 2,275.00	1.08%

<i>Type of Treatment</i>	<i>Examinations For Compensation Purposes — Amount</i>	<i>Treatment Amount</i>	<i>Total Amount</i>	<i>Percentage</i>
2200 Visits				
2201 Home or hospital visit	\$ 8.00	\$ 9,532.83	\$ 9,540.83	
2202 Night visit		1,516.50	1,516.50	
2203 Office visit		53,804.00	53,804.00	
2204 Visit out of city	252.57	5,217.43	5,470.00	
2205 Consultation in hospital	10.00	249.25	259.25	
TOTAL	\$ 270.57	\$ 70,320.01	\$ 70,590.58	33.56%
2300 X-ray				
2301	\$	\$ 22.50	\$ 22.50	
2302	30.00	15.00	45.00	
2303		3.00	3.00	
2304	15.00		15.00	
2305	16.00	30.00	46.00	
2306	110.00	1,230.00	1,340.00	
2307	5.00	664.00	669.00	
2308	45.00	30.00	75.00	
2309		7.50	7.50	
2310	7.50	15.00	22.50	
2311				
2312				
2313				
2314		5.00	5.00	
2315				
2316	60.00	42.50	102.50	
2317	10.00		10.00	
2318	7.50		7.50	
2319	15.00	30.00	45.00	
2320				
2321	120.00	60.00	180.00	
2322				
2323	5.00		5.00	
2324				
2325	25.00	10.00	35.00	
2326	10.00		10.00	
2327		10.00	10.00	
2328	82.50	82.50	165.00	
2329				
2330	20.00	20.00	40.00	
2341	10.00	10.00	20.00	
2344		75.00	75.00	
2345	345.00	105.00	450.00	
2347				
2348	90.00	38.00	128.00	
2350	35.00	40.00	75.00	
2351	10.00	25.00	35.00	
2353	85.00	225.00	310.00	
2354	45.00	315.00	360.00	
2355				
2356				
2357				
2358				
2359				
2363	10.00	30.00	40.00	
2364				
2368				
2369				
2370		7.50	7.50	
Other	45.00	65.00	110.00	
TOTAL	\$ 1,258.50	\$ 3,212.50	\$ 4,471.00	2.13%
Fluoroscopic and General 2371 through 2375	5.00	116.00	121.00	
TOTAL	\$ 5.00	\$ 116.00	\$ 121.00	0.05%
Interpretation of Roentgenograms				
2376 through 2381	3,965.00	1,729.00	5,694.00	
TOTAL	3,965.00	1,729.00	5,694.00	2.70%
X-ray Therapy				
2384 Original Consultation	\$	\$ 10.00	\$ 10.00	
2385 Superficial Therapy	15.00	1,838.00	1,853.00	
2386 Superficial Therapy				
2387 Superficial Therapy for Skin Cancer				
2388 Superficial Therapy (maximum fee)				
2389 Deep X-ray Therapy		1,615.00	1,615.00	
2890 Deep X-ray Therapy				
TOTAL	\$ 15.00	\$ 3,463.00	\$ 3,478.00	1.65%

<i>Type of Treatment</i>	<i>Examinations For Compensation Purposes — Amount</i>	<i>Treatment Amount</i>	<i>Total Amount</i>	<i>Percentage</i>
Radium and Radon Therapy 2392 through 2396	\$	\$ 75.00	\$ 75.00	
TOTAL		75.00	75.00	0.03%
8107 Blood for Transfusions				
TOTAL				
8803 Infra-red	\$ 27.00	\$ 46.50	\$ 73.50	
TOTAL	\$ 27.00	\$ 46.50	\$ 73.50	0.03%
8805 Ultra Violet	\$	\$ 34.00	\$ 34.00	
TOTAL		34.00	34.00	0.01%
8810 Diathermy	\$	\$ 2,685.00	\$ 2,685.00	
TOTAL	\$	\$ 2,685.00	\$ 2,685.00	1.27%
Unscheduled	\$ 420.00	\$ 7,689.75	\$ 8,109.75	
TOTAL	\$ 420.00	\$ 7,689.75	\$ 8,109.75	3.85%
Paid to Nurses	\$	\$ 1,271.00	\$ 1,271.00	
TOTAL	\$	\$ 1,271.00	\$ 1,271.00	0.60%
Paid to Hospitals	\$ 10.00	\$ 13,967.30	\$ 13,977.30	
TOTAL	\$ 10.00	\$ 13,967.30	\$ 13,977.30	6.64%
TOTAL AMOUNT PAID	\$49,694.57	\$160,713.56	\$210,408.13	100%

**MEDICAL SOCIETY OF THE STATE
OF NORTH CAROLINA
V. A. HOME CARE PROGRAM
SUMMARY BY COUNTY MEDICAL SOCIETIES
(Period July 1950 through June 1951)**

<i>Name of County Medical Society</i>	<i>Total Veteran Population</i>	<i>Amount Paid Home Care Program</i>	<i>Amount Paid Per Veteran</i>	<i>Name of County Medical Society</i>	<i>Total Veteran Population</i>	<i>Amount Paid Home Care Program</i>	<i>Amount Paid Per Veteran</i>
Alamance-Caswell	10,333	\$ 804.50	\$.08	Hyde	1,024	19.00	.02
Alexander-Iredell	8,550	3,740.70	.43	Jackson-Swain	4,605	795.75	.17
Alleghany-Wilkes	5,556	1,221.53	.22	Johnston	6,935	657.00	.09
Anson	3,324	103.84	.03	Jones	1,174	21.00	.02
Ashe-Watauga	4,372	1,018.14	.23	Lee	2,685	147.25	.05
Avery	1,751	440.23	.25	Lenoir	4,798	1,348.50	.28
Beaufort	4,533	742.31	.16	Lincoln	3,291	693.50	.21
Bertie	2,581	5.00	.01	Madison	2,571	296.75	.11
Bladen	2,449	15.00	.01	Martin-Washington-			
Brunswick	2,010	652.46	.32	Tyrell	4,869	264.50	.05
Buncombe	16,010	8,187.00	.51	Mecklenburg	24,304	29,062.58	1.19
Burke	5,042	2,776.36	.55	McDowell	3,473	1,584.00	.46
Cabarrus	9,270	1,992.15	.21	Mitchell-Yancey	3,660	673.25	.18
Caldwell	5,067	548.00	.10	Moore	3,095	639.00	.20
Camden-Currituck-				New Hanover	7,927	5,852.40	.74
Dare-Pasquotank	5,289	1,319.70	.24	Northhampton	2,753	182.00	.07
Carteret	2,741	5,250.48	1.92	Onslow	2,322	214.05	.09
Catawba	7,307	2,922.71	.40	Pamlico	1,276	10.00	.01
Chatham	2,674	296.50	.11	Pender	2,025	51.00	.02
Cherokee	2,611	164.00	.06	Person	2,697	578.00	.21
Chowan-Perquimans	2,333	65.00	.03	Pitt	6,612	1,015.00	.16
Clay-Macon	2,945	435.50	.15	Polk	1,527	75.50	.05
Cleveland	7,497	769.80	.10	Randolph	5,596	839.23	.15
Craven	3,982	1,961.34	.50	Richmond	4,120	925.50	.22
Columbus	5,373	617.50	.11	Robeson	8,403	938.50	.11
Cumberland	7,421	3,096.50	.41	Rockingham	7,833	1,550.11	.20
Davie-Rowan	12,061	6,568.82	.54	Rutherford	5,852	683.68	.12
Davidson	7,061	1,037.75	.15	Sampson	4,474	88.00	.02
Duplin	4,290	80.00	.02	Scotland	2,554	735.00	.29
Durham-Orange	14,181	7,772.17	.54	Stanley-Montgomery	7,059	3,082.05	.44
Edgecombe-Nash	11,724	1,222.87	.10	Stokes	2,193	3.00	.00
Forsyth	17,051	44,851.98	2.73	Surry-Yadkin	7,731	1,513.12	.19
Franklin	3,077	16.00	.01	Transylvania	1,949	120.00	.06
Gates	1,103	87.00	.07	Union	4,849	609.90	.12
Gaston	13,354	3,166.88	.25	Vance	3,828	276.50	.07
Granville	3,028	5.00	.01	Wake	15,191	12,797.37	.84
Graham	963	1,078.50	1.12	Warren	2,507	63.00	.02
Greene	1,747			Wayne	6,599	7,041.33	1.07
Guilford	22,119	22,664.61	1.02	Wilson	5,965	1,888.00	.32
Halifax	6,009	496.00	.08	Not Coded		1,867.23	
Harnett	5,038	1,031.00	.20	TOTAL	456,552	\$210,408.13	\$.46
Haywood	5,123	204.00	.04	Respectfully submitted,			
Henderson	3,960	419.50	.11	JAMES H. McNEILL, M.D., Chairman			
Hertford	1,876	1,003.25	.53				
Hoke	1,440	355.00	.25				

The report previously submitted to the Executive Committee is to be considered the main report of this Committee. Supplementary information is as follows:

The resolutions regarding hospitalization of non-service-connected disabilities was sent out to the

designated sources. We had a few replies from our Congressmen with varying reactions.

We heard from Dr. H. H. Shoulders of Nashville, Tennessee, who has a similar Committee in their State Society. They have evolved a plan for the care of these veterans which they consider to be excellent. It consists of having the government buy Blue Cross Hospitalization policies for a certain number of disabled veterans who might be unable to help themselves.

All of the material was thoroughly studied by all members of the Committee. It was the general consensus of opinion that the recommendation set forth in our own resolutions would more nearly solve the problem than following the Tennessee plan.

It is recommended by the Committee that the Delegates to A.M.A. do what may be done to get favorable A.M.A. action on resolution proposed by the Committee and adopted by the Executive Council.

Respectfully submitted,

J. H. McNEILL, M.D., Chairman

EDWARD HEDGPETH, M.D.

EVERETT I. BUGG, M.D.

JULIAN E. JACOBS, M.D.

EBEN ALEXANDER, M.D.

EDMOND L. RICE, M.D.

[On motion, duly seconded and carried, the report was adopted.]

Committee on Prepaid Medical Service Insurance Plan

The Speaker: Dr. V. K. Hart is recognized and he will cite revisions in the report which the Committee recommends. (Dr. Hart read revisions to paragraphs 6 and 8 which are here in revised form).

During the year, important work has been done by your Committee. This work is detailed in the following paragraphs:

Hospital Saving and Hospital Care took the position that they would not like to sell the plan which the Committee had worked out without a companion hospital certificate. They felt that this was the most effective way to control safely all phases of the program and that this safety would require a special hospital certificate. With this idea our committee agreed, because we felt that co-insurance factors should be introduced relative to x-ray, laboratory and drugs. Without these co-insurance factors, there was great danger of abuse, as there is now with certain of the Blue Cross plans. People are undoubtedly going to the hospital just for diagnostic studies, particularly with reference to x-ray. Without curbing such abuses, we run the risk of a loss. The only other alternative is a very high premium which would inhibit the sale of the policy.

Our subcommittee, made up of Dr. Norris Smith, Chairman, Dr. Howard Bradshaw, Dr. J. P. Rousseau and Dr. Harry Brockmann, spent a tremendous amount of time working out the details relative to a companion hospital certificate.

We have had two meetings with the North Carolina Hospital Association relative to this situation. The hospital people would not accept all the things we wished but agreed to work out a certificate which they would approve. This they have done.

The Hospital Association requested equal rights and equal premiums for Hospital Care and Hospital Saving and they accepted no co-insurance on drugs and laboratory. They did make one concession when they agreed to accept 50 per cent of the total x-ray charges, the balance to be collected from the patient. We were in essential agreement on other items.

Then, on February 2nd, our Committee held a very important meeting in Greensboro. After a great deal of discussion, the following resolution was proposed and adopted: "The following resolution was made by Dr. Sams, seconded by Dr. Brock-

mann, and after lengthy discussion was unanimously passed: '(1) That we ask the Hospital Saving Association as our exclusive agent to market our plan as a Blue Shield certificate in conjunction with a companion Blue Cross certificate. (2) That such changes be made that they feel necessary to secure cooperation of enough hospitals to assure the success of the venture. (3) That we are willing to increase x-ray benefits to 50 per cent, but that we again request that the x-ray benefits be administered in accordance with your Committee's compromise suggestion, listing x-ray benefits as professional services but payable to hospital or radiologist in accordance with local custom, though underwritten by the physicians and accepted by participating hospitals as service benefits for the low income group. (4) That arrangements be available whereby Hospital Care Association, so long as they are an approved Blue Cross agency, may also sell this combined certificate, carrying the same underwriting by participating physicians. (5) That we still feel that co-insurance is sound and necessary to curtail abuse and to lower rates, but are in accord with the Hospital Association's desire that the same certificate without co-insurance be available to those who are able to buy it. (6) That in case multiple agencies are authorized to sell this certificate, we do not feel that we have any legal or moral right to insist upon identical premiums, yet we do reserve the right to approve the rates for the professional certificate which the physicians are underwriting. (7) That such proposed certificate and rates be returned for our approval within sixty (60) days, or sooner, if possible.'"

This resolution was approved the following day by the Executive Council. Dr. Fred Hubbard, President, officially invited Hospital Saving Association to undertake the task assigned it. Hospital Saving Association accepted. It should be noted their Board has cooperated to the fullest extent.

There were compelling reasons which actuated your Committee in requesting Hospital Saving to inaugurate this program. Some of these are listed: (1) We felt this should be written as a Blue Shield plan. Since many industrial and labor group contracts are now being written on a national or inter-state basis, the advantages are at once apparent. Hospital Saving has long been the official agency of the Society and the nationally approved Blue Shield Agency. (2) The simplicity and economy of control. The State Society will not have to put up \$15,000 to actuate North Carolina Physicians Service, Incorporated. (Actual incorporation has not been carried out as yet.) More than that, the Society will not have the continuing expense of paid employees in a separate or corporation office. (3) Physicians will have to sign contracts with only one agency. (4) The completely frustrating experience of your Committee in trying to deal with two different boards. (5) It is worthy of note that no state in the union has two Blue Shield plans.

On March 18th, the Board of Trustees of Hospital Saving approved the essential features for a companion hospital certificate. These items were in line with those previously suggested by the North Carolina Hospital Board of Trustees. Nevertheless, they were resubmitted to that Board at their meeting of March 28th. I am happy to say they were approved by the North Carolina Hospital Association Board of Trustees. In the meantime, our Committee had also approved the proposed companion hospital certificate.

We had at last reached the point at which we could ask Hospital Saving Association to take steps to immediately present the program to the members of the North Carolina State Medical Society as a complete Blue Cross-Blue Shield program. This has been done. Every doctor duly licensed by the State of North Carolina has been or will be given

an opportunity to become a part of the program by signing a participating agreement.

Your Committee feels that its assigned task has been fulfilled. We, therefore, ask our discharge.

V. K. HART, Chairman

Dr. Donald B. Koonce: Mr. Speaker, I would move that we adopt and approve this report as revised by Dr. Hart and give a vote of thanks to the Committee for their unusual work.

[The motion was seconded by Dr. Irving Shafer and several others.]

The Speaker: All in favor of the question, let it be known by raising the right hand. It is carried. Now all in favor of adopting the report of the Committee as amended and recommended, say "aye"; opposed, "no." The report is adopted.

Report of Committee to Arrange Facilities for the Annual Sessions

In compliance with the decisions and recommendations of the Committee on Nominations, adopted by the House of Delegates, May 9, 1951, conference was had and arrangements duly completed and contracted for to accommodate the 98th Annual Sessions at Pinehurst. All available accommodations have been engaged to support the educational programs and the scientific assemblies of the society as well as the entertainment of the members and guests of the Society.

Respectfully submitted,
M. D. HILL, M.D., Chairman
Committee on Arrangements

[On motion, duly seconded and carried, the report was accepted.]

Committee to Cooperate with the University of North Carolina Authorities on Selection of the Medical School Faculty

With regard to the Committee of which I assumed the Chairmanship since Dr. Robertson left North Carolina, I really have nothing to report. I have received no information from Dr. Robertson regarding earlier activities of this Committee this year. As you know, it is more or less a committee which is "on call" and which is activated only at the request of Dr. Berryhill. On several occasions, we have conferred with him, either by mail or in person, with regard to prospective appointments in the University and he has constantly kept the Committee posted and has utilized their advice freely in rounding out his Faculty.

Respectfully submitted,
MONROE T. GILMOUR, M.D.
Chairman

[On motion, duly seconded and carried, the report was adopted.]

Committee on Military Service

This Committee has found it unnecessary to meet during the past year.

No demands have been made upon this Committee nor have conditions arisen, which have made it necessary for any action by this Committee to be taken.

The Chairman of this Committee wishes to report upon some of the activities of members of this Committee regarding allied purposes. Two members of this Committee continue to serve on the Advisory Committee to the North Carolina Military District. Dr. J. W. R. Norton is chairman of this committee and Dr. George W. Paschal, Jr., is a member.

The Volunteer Medical Advisory Committee to the Selective Service System has carried out functions, which may be considered as relating to the Committee on Military Service. Action has been taken as promptly as possible as various problems have presented themselves.

Dr. George W. Paschal, Jr., continues to serve as

Chairman of the North Carolina Volunteer Medical Advisory Committee. Dr. J. W. R. Norton, State Health Officer, represents that phase of our profession. Dr. L. E. McCauley has been appointed and represents the colored members of our profession. Mrs. Louise P. East is now a member of this committee representing the nurses. Dr. Samuel L. Bobbitt is the Dental representative of the committee. Dr. H. J. Rollins is the representative of the Veterinarians.

The North Carolina Volunteer Medical Advisory Committee has met from time to time to consider the essentiality and availability of various doctors, dentists and allied specialists, who were special registrants under Public Law 779 of the 81st Congress. It has also made recommendations upon the essentiality and availability of Reserve Officers in the Armed Forces.

The Chairman of the North Carolina Volunteer Medical Advisory Committee wishes to point out in this report that the Committee is mindful of the interests of the members of the Medical Society of the State of North Carolina and that it is their intention that these interests are duly considered, respected and safe-guarded.

Respectfully submitted,
GEORGE W. PASCHAL, JR., M.D.
Chairman
HUBERT B. HAYWOOD, M.D.
Co-Chairman
JOHN W. ROY NORTON, M.D.
CLARENCE E. GARDNER, JR., M.D.
HAROLD S. CLARK, M.D.
MILTON S. CLARK, M.D.

[On motion, duly seconded and carried, the report was adopted.]

Committee on Fees in Industrial Cases

The Committee on Fees in Industrial Cases has met with the members of the North Carolina Industrial Commission three times since the May 1951 meeting of the North Carolina Medical Society in Pinehurst.

The first meeting was held on May 31, 1951, for the purpose of revising the fee schedule administered by the North Carolina Industrial Commission. There appeared to be no possibility at this time of a percentage-wise upward revision of the entire fee schedule. Certain significant increases in fees were agreed upon by the Industrial Commission and were included in the 1951 fee schedule which became effective on August 1, 1951. The Committee on Fees feels that other inadequacies which exist in the present fee schedule can be adjusted upward from year to year.

The second meeting was held on October 4, 1951, for the purpose of reviewing fees contested by physicians in Industrial Commission cases. In almost every case there was an adequate upward revision of the fees to a point that was considered just and fair by the Physician's Committee.

The third meeting of the Committee on Fees with the Industrial Commissioners was held on February 7, 1952, again for the purpose of reviewing contested fees and for making recommendations concerning a special fee schedule for hand surgery which was submitted by Dr. Leonard Goldner. This fee schedule was carefully analyzed and it was the feeling of the Committee that it was in keeping with existing fees in the previously published schedule. Accordingly the Committee recommended to the Industrial Commission that this fee schedule be adopted as a supplement to the Industrial Commission fee schedule for 1951. This schedule was accepted with some reluctance on the part of the Industrial Commissioners because it was their feeling that it was somewhat out of line with the existing fee schedule and that it might be used as a lever

to raise fees now allowed. However, we were able to prevail upon them to carry out our recommendation and they did so.

Many of the problems arising between the physicians and the Industrial Commission are being clarified and it has been the feeling of this Committee that the present Industrial Commission is making every effort to co-operate with the Medical Profession and at the same time to protect the interests of Labor, Management, and the Insurance Carriers. The relationship between the Medical Profession and the Industrial Commission is certainly on a more satisfactory basis than it has been for some time.

The Committee on Fees is essentially a watch-dog committee, and in keeping in relatively close contact with the Industrial Commission it is able to advise the Industrial Commission on problems in which it cannot make reasonable decisions without clear-cut medical advice. Much is yet to be accomplished in establishing equitable medical fees and it is our feeling that this can definitely be done, but not all at one time. The present group of Commissioners has been pleasant and responsive to many of our ideas and it is certainly our feeling, after three years of contact with them, that a Committee on Fees should be continued in the future.

Respectfully submitted,

WM. F. HOLLISTER, M.D., Chairman
DR. WAYNE J. BENTON
DR. ROBERT WILLIAMS
DR. R. B. RANEY
DR. GUY L. ODOM
DR. CHARLES T. WILKINSON

[On motion, duly seconded and carried, the report was adopted.]

Committee to Revise the Constitution and By-Laws

In a conference with Mr. John H. Anderson, Attorney for the Medical Society of the State of North Carolina, on March 14, 1952, he advised further revision in the Constitution and By-Laws, to dispel any reasoning or justification for either the State or Federal Organizations to reclassify the Society from its former classification of a scientific and educational nonprofit corporation and organization to the classification of a trade organization. Therefore, it is recommended:

1. Amend Article 2 of the Constitution relating to purposes of the Society to delete the seventh phrase in the article which reads as follows: "and to the guarding and fostering of their material interest," and insert as the first lines in the article the statement of incorporation in the paragraph of the laws of the State of North Carolina, 1799 and 1858, which incorporated the Medical Society of the

State of North Carolina and which probably constituted legal charter.

2. Amend Article 4, Section 5, of the current By-Laws entitled "House of Delegates" for the purpose of deleting from the first and second lines of the same phrase, "as to the material interest of the profession," and to revise the paragraph to read as follows: "It shall consider and inform the public concerning matters of professional and scientific interests and matters affecting the practice of medicine and the people of the State and shall use this influence to promote the enactment and enforcement of necessary and proper medical and public health laws."

The history of the Society dates back to the laws of 1799 when the General Assembly of North Carolina incorporated by special Act, "North Carolina Medical Society." The next reference in the Laws to the Society appears in chapter 258 of the Laws of 1859 in which the Legislature incorporated by special Act a corporation under the name and style of "The Medical Society of the State of North Carolina."

Your Committee feels that you would like to consider incorporating on the first page of the Constitution and By-Laws a copy or excerpt from these two Statutes of the North Carolina Legislature. The Act of 1859 actually constitutes the charter of the incorporation. The Society does not have on file with the Secretary of State what is originally called Article of Incorporation or the charter of a Corporation, inasmuch as the Society was incorporated by special Act before the general incorporation laws were passed, as were all corporations many years ago. This special Act of the Legislature does for a corporation what the article files with the Secretary of the State would do. The Constitution of an unincorporated association or society ordinarily provides for the same thing that a charter of a corporation does for the company.

We recommend that the Constitution and By-Laws of the Medical Society of the State of North Carolina be changed as suggested above by vote of the membership of the Society at its annual meeting on May 5, 6 and 7, 1952, after being presented to the Executive Council and to the House of Delegates; and they should be voted upon by the membership of the Society following the meeting of the House of Delegates.

The following is an excerpt containing interesting portions of the Legislative Act above referred to:

Legislative History of the Society

The first legislative reference to an organization of physicians in North Carolina appears in Chapter 38, Laws of North Carolina 1799, Page 18, where

it was enacted "that the physicians who have associated themselves together, forming a Medical Society, be incorporated by the name and title of the North Carolina Medical Society."

On April 15, 1859, the North Carolina Legislature again enacted a statute which incorporated the present organization under the name and style of "The Medical Society of the State of North Carolina," as follows: "Be it enacted by the General Assembly of the State of North Carolina . . . that the Association of regularly graduated doctors calling themselves the State Medical Society be and they are hereby declared to be a body politic and corporate, to be known and distinguished by the name and style of "The Medical Society of the State of North Carolina," and by that name and style shall have perpetual succession, and a common seal, that they or a majority of them and their successors shall be able and capable in law to take, demand, receive and possess money, goods and chattels, land and tenements, and apply the same to the use and for the advancement of the purposes and objects of said Society . . . That they shall be authorized to make all by-laws, rules and regulations necessary and proper for their own government, and for carrying out the purposes contemplated by this act, and for the promotion of medical science and for the elevation of the medical profession in this State, not inconsistent with the Constitution and laws of North Carolina."

Following action of the House of Delegates on this report, a revised printing will be effected by Headquarters Office.

Respectfully submitted,
 ROSCOE D. McMILLAN, M.D.,
 Chairman
 Committee to Revise the
 Constitution and By-Laws

Committee on Grievances

The Committee on Grievances has held three meetings during the year and anticipates another before the meeting of the Society on May 5. We have continued as specified in the By-Laws and used the normal channels to inform the public and the profession as to the existence and functions of the committee.

Twenty-three complaints have been considered by the committee. Twelve have been satisfactorily settled; four are still pending, and in seven cases no action was considered necessary. It is felt that the committee is functioning smoothly. However, we realize that it is a tremendous undertaking, and our experience is that the work of this committee is becoming more difficult and in all probability will continue so in the succeeding years. The committee

still feels that it fills a definite need and we believe it is a satisfactory method for strengthening public relations as well as internal professional structure.

The committee feels that a revision of the By-Laws is indicated and recommends that Section 10, "the oldest member in point of professional service shall serve as chairman of the committee," be stricken and have substituted, "the oldest member in point of service on the committee shall serve as chairman." "The Vice-Chairman and Secretary shall be selected from its members."

Respectfully submitted,
 ROSCOE D. McMILLAN, M.D.,
 Secretary
 Committee on Grievances

Committee on Eye Care to Work with the North Carolina State Board of Health and Blind Commission on the School Health Program

I wish to report that the Committee on Eye Care to Work with the North Carolina State Board of Health and Blind Commission on the School Health Program has not had a meeting during the past year and there has been no activity during that period.

Respectfully,
 V. M. HICKS, M.D., Chairman
 Committee on Eye Care

[On motion, duly seconded and carried, the report was adopted.]

Physicians Committee on Nursing

It has been said that nursing in America during the past few years has been in a state of transition (confusion may be a better word). During this period national and state surveys have been made and reports presented.

Using the reports of these surveys and several other important special studies the nursing profession has taken the lead in charting and launching a course involving its various activities, notably in education, organizational structure, and economic security for its members. The effect of this as it relates to the practice of medicine is a matter of concern to all of us.

Nursing Education—Here, we are concerned chiefly with nursing service and nursing education in North Carolina. We are confronted with an attempt to apply to this state patterns and standards set for the nation at large. This has been done for the most part by groups and individuals not too familiar with and not too much concerned with this state's specific needs. For example, our population distribu-

tion is largely rural, with many small and medium sized towns and a few small cities. We have many small hospitals, quite a few of which have nursing schools, and a few large hospitals with schools. The large schools are for the most part of relatively recent development. As at present, for many years the small schools have educated capable nurses. We now find that it is difficult or impossible for these schools to meet the requirements for accreditation by the national accrediting agency which is sponsored by the nurse association. It is important to resolve the unhappy situation which is thus created.

This Society acknowledges the rights of its ally, the nursing profession, to chart and follow its own course. It recognizes that in North Carolina the nurse association naturally takes its direction largely from national nurse organizational headquarters. But, as far as nursing is concerned the chief objective of the people of North Carolina is an adequate supply of nurses trained to meet the needs of this state.

Of course nurse education must keep in step with progress and changing circumstances. The responsibility for this falls upon all who have to do with it, including the legislature and the courts as well as the nursing and medical profession and the hospitals. Just how well has the job been done? Hospitals and doctors want nurses capable and willing to care for their patients. What better evidence is there in North Carolina as to the quality of nurses graduating from our training schools than that they have satisfied not only North Carolina hospitals and doctors, but of greater importance, the patients.

Recent experiences of the North Carolina Joint Committee on Standardization of Nursing Schools has shown that the court, while recognizing the importance of reasonable standards, will not submit to standards which cannot be met by our present schools. Judge Barnhill's opinion in the complaint of the Hamlet Hospital School of Nursing states clearly that the power of the Board is limited to the regulations specifically set forth in the law itself. Consequently, it seems that added requirements would necessitate new legislation, before they can be effective. It is not likely that our legislature will make standards that are difficult to be met by our now existing schools. The privilege of reciprocity for North Carolina Registered Nurses to practice in other states has its importance and its difficulties just as does the matter of reciprocity for members of the medical profession. If the size of some of our schools denies their graduates the privilege of reciprocity in some states, arrangements can be made whereby those few who wish to practice in such states can get the required additional education.

It seems to us that hospital schools of nursing will continue to furnish most of the nurses for North Carolina, graduation from high school being the educational entrance requirement. Any graduate in this basic training desiring to take up work in any special field can take the additional training needed. Qualification for work in such special fields can be recognized by certification by examining boards or by college degrees, although they may not have a legal status as does the R.N. designation.

Organizational Structure of nursing is mentioned here merely to give a simple statement for information. There have been heretofore six national nurse organizations. After much thought and effort over several years it is probable that the last stages of re-organization will take place at the biennial meeting of the American Nurse Association to be held in Atlantic City in June. It is proposed in the future to have only two national organizations, The American Nurse Association which is to be comprised solely of nurses, and the National League for Nursing which will include lay members in various walks of life.

Economic Security—Part of the American Nurse Association platform for the 1950-52 period deals with economic security for members of the nurse profession. Reading this and following the activities of nurse association gives us a clear impression that (1) Organized nursing marches with other groups in commend of essential services holding out for a maximum of pay and favorable working conditions for its members. (2) What it can and is doing for this so-called security for its members is its chief inducement for the allegiance and support of individual members. The following are some of the activities being carried on: (1) An effort to control nurse licensure by creating in each state a nurse examining board and a standardization board for schools, comprised solely of nurses. (2) Legislation in all states designated as a mandatory law to replace the existing permissive law. This legislation would deny any one to act in any capacity as a nurse without a license and passing an examination. (3) Provision for fees for special duty nurses in Blue Cross certificates. (4) The use of collective bargaining methods. (5) Setting up of and publicizing standards for pay and working conditions for varying categories of nursing. (6) Control of nursing education by controlling curriculum and requirements for schools of nursing. For this there has been established a national accreditation service which classifies schools in respect to the extent they meet the standards set up, and publishes these classifications in the newspapers of the country.

Conclusion—In presenting this report of some of the activities in the field of nursing this committee wants it to be known that it is in sympathy with every wish of the profession of nursing to improve nursing service and the education and economic betterment for nurses requisite to giving that service. However, as we do not believe that some of the steps being taken in the name of improving nursing service are likely to accomplish that, the committee will state its stand in regard to some of these matters in the following resolution for consideration by the House of Delegates of the Society:

Resolution—Whereas the graduates of existing schools of nursing in North Carolina have given and are giving good and acceptable service to the people of North Carolina, services which are approved by the doctors and the hospitals of the state; and

Whereas various regulations for the conduct of these schools have been set up by the joint Board of Standardization of Training Schools for professional nurses in North Carolina, regulations which do not have the support of the law; and

Whereas reasonable standards and regulations are indeed necessary, some of which are not included in the present law; and

Whereas it is so very necessary not only that the present schools be encouraged to continue to train nurses adequately but that additional new schools be created; therefore be it resolved: That the Medical Society of the State of North Carolina desires the continuance of all existing schools of nursing in North Carolina; That the state law should be so amended as to include such reasonable standards and regulations as are necessary to train nurses to give good nursing care.

Respectfully submitted,
HARRY L. JOHNSON, M.D.
Elkin, N. C.
MOIR S. MARTIN, M.D.
Mt. Airy, N. C.
WILLIAM T. RAINEY, M.D.
Fayetteville, N. C.
RALPH E. LORE, M.D.
Lenoir, N. C.
JOSEPH T. KERR, M.D.
Wilson, N. C.

HARRY L. BROCKMANN, M.D.
High Point, N. C.
Members of the Physicians Committee
on Nursing

[On motion, duly seconded and carried, the report was adopted.]

Committee to Study and Recommend Publication of an Average Schedule of Medical Fees

The idea of an average schedule of medical fees in North Carolina has so far received no favor with the profession.

This committee has no activity to report.
G. W. MURPHY, M.D.
Chairman

[On motion, duly seconded and carried, the report was accepted.]

Committee to Study Care and Control of Chronic Illness

Your Committee has continued to study the problem of Chronic Illness both at the state and national levels. A representative of the Committee participated in the National Conference on Chronic Disease: Preventive Aspects, held in Chicago, March 12-14, 1951, under the sponsorship of the Commission on Chronic Illness.

In view of the success of the open public meeting held by the Committee last year another round table discussion was held in Chapel Hill, Friday, February 22, to which representatives of national and state agencies concerned in the care of Chronic Illness were invited. In addition to six members of the Committee—Drs. Amos G. Crumpler, Fuquay Springs; Richard Masland, Winston-Salem; Karl B. Pace, Greenville; Charles D. Thomas, Black Mountain; George T. Harrell, Winston-Salem; Mr. James T. Barnes, Ex Officio, Raleigh—the following thirteen guests attended: Dr. Charles H. Burnett, Professor of Medicine, University of North Carolina, Chapel Hill; Dr. A. H. Elliott, Director, Personal Health Division, N. C. State Board of Health, Raleigh; Dr. Horace Hamilton, Head Department of Rural Sociology, N. C. State College of Agriculture and Engineering, Raleigh; Miss Katherine Ormston, Executive Secretary, N. C. Heart Association, Chapel Hill; Mrs. Annie May Pemberton, Supervisor, Services to the Aged, State Board of Public Welfare, Raleigh; Mr. Albin Pikutis, Executive Director, N. C. League for Crippled Children, Inc., Chapel Hill; Mr. Frank Webster, Executive Secretary, N. C. Tuberculosis Association, Raleigh; Dr. William C. Byrd, Superintendent Caswell Training School, Kinston; Dr. Edward N. Pleasants, Superintendent, State Hospital, Dix Hill, Raleigh; Dr. William Fleming, Professor of Preventive Medicine, University of N. C., Chapel Hill; Dr. A. L. Chapman, Regional Medical Director, Federal Security Agency, Region III, Washington 25, D. C.; Mrs. Frances S. McConnell, Educational Director, N. C. Heart Association, Chapel Hill; Mrs. Molly Masland, Legislative Committee, Auxiliary to the Medical Society of the State of North Carolina, Winston-Salem. A most enlightening informal discussion of the problem of chronic disease in North Carolina was held. From this discussion and the other information collected, your Committee would like to present to the Society the following conclusions:

Orientation:

A chronic illness is one which will require some medical supervision for at least sixty days. The most important chronic diseases appear to be heart disease, arteriosclerosis, hypertension, neurologic disorders, mental disease, arthritis, kidney disease, tuberculosis, cancer, diabetes and asthma. On the basis of surveys reported last year it is estimated that approximately 632,000 cases of chronic illness

are present in this state at all times (1/6 of the population). Of these cases 1/10 are completely disabled, 1/3 partially disabled, and 1/3 are not disabled. One-sixth of the cases are under 25, 1/2 under 45, and 3/4 are in the productive years 15 to 64. It is estimated that chronic illness, exclusive of loss of wages, entails a cash outlay in the state of approximately 57 million dollars each year.

Surveys:

The survey in Wake County "Chronic Illness in a Rural Area" summarized in our report last year was discussed in the Chronic Illness News Letter, Vol. 2, No. 9, September, 1951—a publication extensively circulated throughout the entire nation. This survey has not been extended and no new ones have been undertaken in the state this year. A "Model Community Survey of Local Chronic Illness Facilities and Services" has been published, September, 1951, by the Commission on Chronic Illness; it will serve as a useful guide to any communities undertaking surveys. "Design for Action," a social survey of Spartanburg County, South Carolina, discusses the similar problems found in a neighboring state. A survey in Wolverhampton, England, which emphasizes the social impact of chronic illness on families in the community, is reported in a book "The Social Medicine of Old Age" by Dr. J. H. Sheldon published by Oxford University Press, London. The report of the Governor's Conference on Aging held in Raleigh, June 28-29, 1951, is now available; it contains valuable source material. Copies of this report will be furnished by the Secretary of the Conference to the Executive Secretary's office for mailing to various committees of the Society and to county medical societies. It is hoped that the current study on hospital financing by the Committee on Cost of Hospital Care, being conducted with North Carolina as a pilot state, will yield information on the extent to which facilities for the care of acute illness are tied up in the care of chronic illness. Extension of the present activities of the Committee in this field should be encouraged by the Society.

Detection:

Your Committee reaffirms its belief that detection of chronic illness is best accomplished through regular periodic complete health examinations by practicing private physicians.

Additional cases of chronic illness may be detected by mass surveys such as the state-wide survey for tuberculosis being conducted with mobile units by the State Board of Health. Preliminary data, collected chiefly in schools and in industry, suggest that approximately 1.8 per cent of the films show pulmonary pathology of some sort of which 0.8 per cent are active cases of tuberculosis; 2/3 of the active cases are new and previously unknown. More emphasis in the future should be placed on the older age groups outside of large industrial plants. It is apparent that in the next few years a great number of films will be accumulated in the state which offer tremendous potential for detection of other chronic diseases. Experience with similar films in Boston, as reported in *Circulation* 4: 641-658, November, 1951, has indicated that if 70 mm. films taken in tuberculosis surveys are re-read for the presence of cardiovascular disease, many abnormalities overlooked in the initial reading for tuberculosis alone will be detected. Subsequent examination of the suspects by a physician confirmed the presence of cardiovascular disease in approximately 3/4 of the suspected cases.

We find that in the past, a person presenting himself for a 70 mm. survey film in this state has not been requested to name a family physician. If pulmonary pathology is suspected, the patient and the nearest county health department are notified and a 14 x 17 film is taken locally. If pulmonary

pathology is found on the larger film, the family physician is notified; cardiovascular abnormalities detected on the 14 x 17 film are noted on the Tuberculosis Epidemiological Record sheet. Your Committee has worked out with the State Board of Health means by which, beginning with the Cumberland County Survey March 7, the name of the family physician will be entered on the cards filled out at the time the 70 mm. film is taken. The patient and his family physician will be notified by form letter when cardiovascular as well as pulmonary lesions are suspected. The physician will be asked to notify the State Board of Health when the patient reports to him.

Your Committee has approached three local heart associations and proposed that the films taken in their respective counties be reviewed by local radiologists or cardiologists and that suspected cases of cardiovascular disease be examined by local physicians to determine how many previously unknown cases can be detected in North Carolina from 70 mm. survey films.

Preliminary data indicate that cardiac abnormalities are now being reported in about 0.7 per cent of all persons surveyed. It was suggested by your Committee to the Heart Associations that the planning and execution of these pilot experiments be done in conjunction with their county medical societies. The Durham-Orange County Heart Association has accepted the challenge and is planning such a study.

Preliminary evaluation of a diabetic survey conducted by private physicians in Harnett County has shown that 3 out of 2,000 random urine specimens contained reducing substance. Experience there and elsewhere in this state has indicated that best results are obtained with urine specimens collected two hours after the heaviest meal of the day which in most North Carolina families is at mid-day. Caution should be exercised after boiling the urine test to allow it to cool to room temperature before it is read, so that minor degrees of glycosuria will not be overlooked. Experiments in other states on detection of diabetes from blood samples drawn for venereal disease surveys have shown that 245 cases were detected out of 36,000 random samples. Three out of four early diabetics are missed by this single sample blood technique. Simultaneous blood and urine examinations detect four times as many diabetics as urine alone. In the present state of technical knowledge it is not feasible in this state to preserve blood drawn for serological testing for simultaneous testing for diabetes. Since testing of the blood is impractical at this time the best and cheapest detection method presently available is the use of urine samples properly examined periodically by the family physician.

Treatment:

Much chronic illness is better taken care of in the home than in a hospital. The Committee reaffirms its belief that hospital care can be best provided by new wings or floors designed for the chronically ill and attached or adjacent to the general hospitals now operating. The emphasis in our state is still directed toward providing hospital care for acutely ill patients. In planning for new hospitals and additions to existing ones the special needs and problems of patients with chronic disease should receive increasing emphasis. The ultimate goal should be to reach the national standard of two beds for chronic illness per thousand population.

No extensive facilities for care of chronic illness have been incorporated in the present unit of the teaching hospital at Chapel Hill. A construction program for additional beds for care of tuberculosis, including 100 beds at Chapel Hill, 140 beds for Negroes at Black Mountain, and 350 beds at Wilson

will provide, when completed in 18 months, 2.5 beds per death per year from tuberculosis. These facilities should be able to handle this chronic disease for the current population of the state, especially if the death rate continues to fall.

Facilities are not being provided for adequate care of several forms of chronic nervous and mental disease. The facilities for the care of epileptic patients, now provided at the state hospital at Dix Hill, are not adequate. The problem of treating and training individuals with epilepsy is an entirely separate and distinct one from the treatment of psychotic patients. It is undesirable for epileptics to be committed to a mental institution since commitment carries with it a stigma. As a result, patients with convulsive disorders are admitted only in the last and severe stages of the disease. Epileptics should be handled in an independent institution separate from a mental hospital. It would be desirable to have such facilities established in relation to a medical school, and preferably should have a colony atmosphere. Such a facility should be looked on as a hospital for therapy of convulsive disorders and for training of epileptic children—not as a custodial institution. Epileptic children should immediately begin to receive the educational benefits which they need but are not receiving. Separate school facilities should be established where they are now confined without waiting for the establishment of new facilities, so that the therapeutic value of education can be immediately gained.

Inadequate facilities exist for the care of mentally defective individuals, who also present a problem distinct from psychotic patients. The problem is particularly pressing in the case of Negro children. At the present time the ability of Dix Hill to care for psychotic patients, and of Caswell Training School to handle trainable individuals is impaired by lack of facilities. Dix Hill is caring for a considerable number of mental defectives and Caswell is handling a number of non-trainable individuals who would be better handled elsewhere. No facilities are available for handling graduates of the Caswell Training School who, in spite of training, are not self sufficient, and who need some place to go after their training is completed. The establishment of a new institution, preferably of the colony type, for the custodial care of mentally defective individuals incapable of caring for themselves would greatly reduce the load at Dix Hill and Caswell and would improve the quality of care available for psychotic and trainable individuals remaining in those two institutions. Until such facilities can be built, vigorous encouragement should be given to the movement already evident in several larger communities of the state for the establishment of day care centers where individuals with varying degrees of mental retardation can be cared for. Facilities for day care release other members of the family for work and reduce the serious burden carried by the family as long as a severely retarded individual is kept constantly in the home.

Facilities at Dix Hill are further overtaxed with the care of senile individuals not suitable for psychiatric treatment. Physicians should emphasize to families that when patients are committed to a mental institution that the commitment is not irrevocable, but is for a thirty day observation period. At the end of that time families should be prepared immediately to accept back for home care cases not suitable for institutional therapy. Whenever possible elderly individuals should be placed with relatives or in nursing homes. Since 1947 facilities have been expanded rapidly in the state with the development of 154 licensed boarding and nursing homes in 54 counties with a capacity of roughly 1,000. With the county homes this program, supervised by the State Board of Welfare, has responsibility for about 3,000 older people. The average cost of care in county

homes is \$46.42 per month, excluding capital investment. This sum paid by the counties is far less than would be necessary to establish hospitals and to provide care in them. Under the boarding home plan residents are available for assistance up to \$50 per month with the privilege of exercising some selection in their living arrangements. This selection retains the independence and dignity of the patient who has no relatives or home. In addition, the person operating the boarding home as a private enterprise is allowed to decide what type of patient he will accept. Often these boarding homes are started on a small scale by a family, which is caring for a mentally defective, senile, or otherwise chronically ill member, accepting similar non-relatives to share the cost. These problems occur in every social and economic level and are not confined to indigents. Physicians wishing information on available facilities near their communities where patients may be referred can obtain it from Services to the Aged, North Carolina Department of Public Welfare, Raleigh.

As the population continues to increase in age, the need for facilities for care of chronic illness will increase. Fourteen county homes in the state have been closed since 1947. Wherever these facilities exist and are suitable, effort should be made to use them as chronic hospitals for treatment of illness rather than as county homes for custodial care of senile individuals. An excellent example is the adaptation of the Robeson County Home for the Aged to the North Carolina Cancer Institute with facilities for 60 indigent patients with malignancies proved by biopsy. The physical renovation was supported by the state, but operating expenses are paid by private philanthropy through the North Carolina Division of the American Cancer Society.

Local communities should be urged to increase the amount of home nursing service available through community nursing programs or health departments where minimum periodic bedside care is necessary for chronic illness. Nursing needs are best met by inclusion in a general community program of medical care; it is impractical to consider separate services for the chronically ill.

No new facilities for care of chronic heart ailments have been established in the state. Heart House in Durham is still operating at a cost of roughly \$4 per day. It is in new quarters which are open for inspection by physicians from communities interested in establishing similar facilities.

Rehabilitation:

A national Institute on Rehabilitation of Tuberculosis Patients, sponsored jointly by the North Carolina Tuberculosis Association and the School of Social Work, was held at the University of North Carolina, August 12-17, 1951. The techniques discussed in that conference should be made more widely known. Progress is being made through the various sanatoria in the state, in the rehabilitation of tuberculous patients.

Rehabilitation of psychiatric patients should be further encouraged and expanded within the framework of the existing program for care of the mentally ill. Every effort should be made to give schooling and vocational training to mental patients so as to return them to active life in their communities.

The State Vocational Rehabilitation Service is referring patients with remedial chronic impairments to medical centers in the state for correction of defects. A great deal further can be accomplished by rehabilitation of chronically ill individuals being cared for in their homes. Emphasis by practicing physicians on planned rehabilitation should be thought of not only in terms of getting the patient with chronic illness back to work, but in terms of release of bread winners kept from gainful occupation by the necessity of caring for an individual with chronic illness.

The social implications of chronic illness should be more widely recognized. An example is the moral pressure on the male head of the family who may have heart disease to continue working in an attempt to earn a living for his family; retraining or better industrial placement in another job would meet his psychological need to work and prevent further damage to his heart. Wider recognition of social pressures which create worries, especially in men, and prevent them adequately from "ventilating" their troubles should be recognized. The lesser incidence of cardiovascular disease in females may well be due in part to their emotional lability and lack of exposure to the social pressures operating on the male.

Education:

Increased emphasis on education of undergraduate medical students in techniques for care of chronic illness in the home is being given in the curriculum developed at the University of North Carolina Medical School and in the reorganization of the Department of Environmental Medicine at the Bowman Gray School of Medicine.

It is hoped that some means of continuing education in the field of chronic diseases can be worked out for practicing physicians through extension courses at one of the state educational institutions. It is hoped that demonstrations of rehabilitation techniques can be conducted by teams of physicians, either through clinics sponsored by county medical societies and conducted in local hospitals or by one or more symposia sponsored by voluntary health agencies at central locations in the state.

Since principles worked out in one chronic disease can often be applied to others, it is hoped that courses can be worked out through some educational institution in the state to train technical personnel in rehabilitation techniques, perhaps through in-service training institutes. Physicians should be urged to attend the four to six weeks' training courses being offered in larger cities out of the state.

Practicing physicians should aid in continuing education of local communities through health education in the schools and in home demonstration clubs, and through wider dissemination of information contained in such pamphlets as "Steps Toward Prevention of Chronic Disease," the short summary of the National Conference on Chronic Disease published by Health Publications Institute, Inc., Raleigh.

The Society should stimulate our professional educators to set up courses in Special Education so that qualified teachers could be trained for our State Hospitals, institutions and schools. The efforts of the North Carolina Society for Crippled Children and Adults to stimulate interest in the field through demonstration workshop centers at various colleges in the state should be commended and encouraged.

Recommendations:

It is recommended that the practicing physicians in the state take the lead in emphasizing detection, prevention, rehabilitation and home nursing care of chronic illness through application to individuals under their care.

It is recommended that the Committee on Public Relations consider regular news releases to the press in the state on the problems of chronic illness. Factual information on the needs for increased facilities should be stressed before the meeting of the General Assembly in January, 1953. It is recommended that succeeding Presidents of the Society give consideration to a cross appointment between the Public Relations Committee and this Committee to implement this recommendation.

It is recommended that increased emphasis be given through the Committee on Industrial Health to placement of chronically ill individuals in suit-

able jobs in industry. It is suggested that consideration be given by succeeding presidents to a cross appointment between the Committee on Industrial Health and this Committee.

It is recommended that a separate state institution of the colony type in the range of 200-270 beds be established for the care and training of epileptic children. It is further recommended that additional facilities be constructed at Dix Hill to replace the condemned buildings with a new infirmary and a new women's building. It is further recommended that a separate state institution of the colony type in the range of 400 beds be established for the custodial care of mentally defective individuals incapable of caring for themselves. Should the Society go on record as favoring these recommendations, it is suggested that they be made to the General Assembly through the Legislative Committee.

It is recommended that the Society take the leadership in and support state studies on these problems and plan a coordinated adequate attack on chronic illness in conjunction with local official agencies and private philanthropic organizations.

Respectfully submitted,

WILLIAM A. ANTHONY, M.D., Gastonia
LENOX D. BAKER, M.D., Durham
AMOS G. CRUMPLER, M.D., Fuquay Springs
RICHARD B. DAVIS, M.D., Greensboro
MAURICE H. GREENHILL, M.D., Durham
WILLIAM C. HAYES, M.D., N. Wilkesboro
EDWARD G. MCGAVRAN, M.D., Chapel Hill
RICHARD L. MASLAND, M.D., Winston-Salem
KARL B. PACE, M.D., Greenville
CHARLES W. STYRON, M.D., Raleigh
HARRY WINKLER, M.D., Charlotte
GEORGE T. HARRELL, M.D., Winston-Salem
Chairman

[On motion, duly seconded and carried, the report was adopted.]

Committee on Archives of Medical Society History

The Committee on Archives and History of the Medical Society of the State of North Carolina has held one meeting during the past year. The work of the Committee has been handicapped by two specific circumstances. The first was the death of the late, lamented Dr. Wm. de B. MacNider and the resignation of Dr. K. P. B. Bonner by reason of impaired health. Dr. Wm. B. Bullitt and Dr. Ivan M. Proctor were appointed by President Hubbard to fill the vacancies on the Committee incurred by the death of Dr. MacNider and the resignation of Dr. Bonner.

Specific phases of medical history are being accumulated by individuals as outlined in our last Report to the House of Delegates, and there are a number of counties in which the work of accumulating medical history on the county level is going forward. All of the County Societies have not as yet sent in names of physicians in their particular counties from which the committee will select a name to prepare the history of medicine in that particular county. Secretary Barnes has been requested by the Committee on Archives and History to again contact these counties and urge them to supply a list of names as requested. When this has been done some one will be designated in each county to prepare the history of medicine on the county level.

The work is going forward, and will of necessity take considerable time. When all of the data has been accumulated the Society will be faced with the problem of compiling and editing the material.

Respectfully submitted,
PAUL F. WHITAKER, M.D.
Chairman

[On motion, duly seconded and carried, the report was adopted.]

Committee on Scientific Exhibits

The Scientific Exhibit Committee was able to secure twenty-six exhibits for the 1951 meeting. It was felt that these exhibits were in keeping with the standards that have been shown at previous meetings, and the exhibits that are shown at the national meetings. The committee hopes that it will be able to secure equally as good exhibits for 1952.

Respectfully submitted,
LENOX D. BAKER, Chairman
Committee on Scientific Exhibits

[On motion, duly seconded and carried, the report was accepted.]

Committee on Heart Disease Control

This is the first year of the existence of this Committee, and its purpose was not exactly clear. It is felt by the members, however, that it was supposed to act as a liaison between the State Society and the North Carolina Heart Association and other agencies which might have programs having to do with the care, study, and prevention of heart disease.

The members of the Committee have attended meetings of the Board of Directors of the North Carolina Heart Association, and have functioned as parts of that organization. The attached minutes (not reproduced here) of the meeting of June 16, 1951, will give you an idea of the business transacted by the State Heart Association.

There was a second meeting of the Committee with Dr. A. H. Elliott of the State Board of Health. The purpose of this was to discuss various plans for spending Federal money allotted to the state. Among projects discussed were extension clinics, having radiologists interpret photofluorographic screening films for heart defects, education of technicians in various cardiac techniques.

So long as the North Carolina Heart Association is active and is collaborating with the State Board of Health, the value of this particular Committee is doubtful, and it is suggested that the matter of its continuation be left up to the Executive Council and/or the House of Delegates.

Respectfully submitted,
J. H. McNEILL, M.D., Chairman
ROBERT L. McMILLAN, M.D.
EDWARD S. ORGAIN, M.D.

[On motion, duly seconded and carried, the report was adopted.]

Committee to Study Nursing and Nursing Education in North Carolina

This committee was authorized by the House of Delegates May 7, 1951, to meet with similar committees from the North Carolina Hospital Association and the North Carolina State Nurse Association to prepare for wide distribution, a short summary of the Report of the North Carolina Committee to Study Nursing and Nursing Education, which was published in 1950, November. One third of the expense of publishing this summary was voted to be borne by this society, the total expense having been estimated at \$650.00.

The combined committee met in Chapel Hill on July 5, 1951. The purpose of preparing and circulating this condensed resume was stated by Dr. W. P. Richardson. A proposed text drafted by Miss Emma Carr Bivens was read, its title *Better Nursing for North Carolina*. After several criticisms and suggestions by those present the final text was agreed upon.

Following this committee meeting 25,000 copies of the booklet were printed. A great many have been distributed among various groups and individuals throughout the state; hospitals, hospital board members, physicians, Women's Clubs, Civic Clubs, Parent-Teachers Association, etc. As agreed upon, one third of the expense of printing, a little

more than \$200.00, was borne by this society. Another \$200.00 was contributed by the Medical Auxiliary and this was used for mailing and distributing the booklets.

It is understood that the North Carolina Committee to Study Nursing and Nursing Education has been authorized to continue its existence and activity. To date, however, we have had no information concerning this other than that it has had a meeting to reorganize on a permanent basis.

Respectfully submitted,

MOIR S. MARTIN, M.D.

Mt. Airy, N. C.

HARRY L. JOHNSON, M.D.

Elkin, N. C.

WILLIAM P. RICHARDSON, M.D.

(Non-voting consultant)

Chapel Hill, N. C.

HARRY L. BROCKMANN, M.D., Chairman
High Point, N. C.

[On motion, duly seconded and carried, the report was adopted.]

Committee on Public Relations

As has been the custom in the past, this report from the Public Relations Committee will consist only of generalities. The details of the work of the Public Relations Department will be made by the Executive Secretary's office.

In a meeting at Wrightsville Beach in August, 1951, the Public Relations Committee with President Hubbard decided that the Public Relations Department and its Director should become an integral part of the Executive Secretary's Department.

A resolution was drawn up and presented before the Executive Committee of the State Society in Raleigh in September, 1951. The resolution was unanimously passed by the Executive Committee with the further stipulation that it go into effect immediately.

In December of 1951, our Public Relations Director who had become Assistant to the Executive Secretary in charge of Public Relations, with very little notice, handed in his resignation. This resignation was immediately accepted by the Public Relations Committee with the approval of the president.

At its meeting in January, 1952, the Executive Committee of the State Society formally approved the action of the Public Relations Committee in this matter.

With the resignation of Mr. Cox, our Public Relations Department was left without an immediate head. The Executive Secretary, through his office, immediately took charge of that department and has continued to see that it has run since that time.

At the date when this report is being drawn up, no successor to the office of Assistant Executive Secretary in charge of Public Relations has been made. However, we have numerous applicants and before the State meeting in May is held we are sure that we will have such an Assistant Executive Secretary in charge of Public Relations.

The Public Relations Committee has been somewhat hesitant to act rapidly in this matter as it would not like to make a serious mistake twice.

A successful annual high school Essay Contest was held in association with American Association of Physicians and Surgeons under the capable jurisdiction of Dr. Amos Johnson, a member of the Public Relations Committee.

In Raleigh in December, our fourth annual Public Relations Conference was held and I am confident that all who were present agreed that it was the most successful one that we have ever had. The attendance being much more satisfactory than any of the years before. The details of this Public Rela-

tions Conference will be left to the report through the Executive Secretary's office.

Other matters have been more or less routine functions of the Public Relations Committee which will also be reported by the Executive Secretary's office.

Respectfully submitted,

DONALD B. KOONCE, M.D., Chairman
Public Relations Committee

[On motion, duly seconded and carried, the report was adopted.]

Committee on Medical Society Home and Library

No steps have been taken to secure a permanent home for the State Medical Society. Suitable housing at a cost compatible with what we have to put in it has not been available. Office space in the Professional Building is available at the present time, but I doubt that it is more desirable than the present space now occupied.

The medical library maintained by the State Board of Health in the State Laboratory of Hygiene Building has a large number of books and could easily house more. The services of a medical librarian would be necessary to make this library an effective one for the medical profession in North Carolina.

It has occurred to me and I think that it is an entirely practical idea to ask the State Librarian to incorporate a medical section in the State Library in Raleigh. We could ask her to be custodian of books donated by members of the profession and to render library service. We could supplement her services with some remuneration from the Medical Society. A yearly contribution by the Medical Society for new books and journals and for binding journals would be in order. I shall be glad to take this up with the State Librarian if the State Medical Society cares to have me do so. The Raleigh Academy of Medicine has built up a very good working library at Rex Hospital by making a donation each year to buy new books. A fine reading room is already provided by the State overlooking our beautiful Capitol Square.

Respectfully submitted,

HUBERT B. HAYWOOD, M.D., Chairman
Committee on Medical Society Home
and Library

[On motion, duly seconded and carried, the report was adopted.]

Report of the Advisory Committee of the Auxiliary to the Medical Society of the State of North Carolina

In the Spring the Advisory Committee met with Mrs. Watson Roberts, President of the Auxiliary, in her home in Durham and with her made tentative plans for the year.

In the Fall the Advisory Committee met with the Executive Board Meeting of the Auxiliary at the Morehead Planetarium at Chapel Hill at which time plans were formulated and expedited and a very fine program held.

Personally, I, as Chairman have attended several local meetings of the local Auxiliaries and attended the Second District Meeting in Washington.

The Advisory Committee to the Auxiliary of the North Carolina Medical Society has been one which has been extraordinarily interested in the workings of the Auxiliary and its accomplishments and there has been excellent support and cooperation from all three members of the committee.

It is with pleasure that I present to the Medical Society the written report (succeeding), from Mrs. B. Watson Roberts, President of the Auxiliary to the Medical Society of the State of North Carolina. This report will be read by Mrs. Roberts before the House of Delegates at the annual meeting of the

Medical Society of the State of North Carolina in May.

Respectfully submitted,

RACHEL D. DAVIS, M.D., Chairman, Kinston

OLIVIA ABERNETHY, M.D., Elkin

WILLIAM RANEY STANFORD, M.D., Durham

[On motion, duly seconded and carried, the report was adopted.]

Report of the President of the Auxiliary to the Medical Society of the State of North Carolina

Fiscal Year June 1-May 31

Report covers June 1, 1951-April 4, 1952

(Incomplete)

As president of the Auxiliary to the Medical Society of the State of North Carolina, I wish to submit the following report:

We have 1497 paid members for the year 1951-52. We had 1458 last year.

We have 44 county auxiliaries which represents 66 counties, four of which have been organized this year—Onslow, Person, Franklin and Randolph. The Eighth District is the first to be organized 100%. We have ten districts with approximately ten counties to a district. The First District has nine counties but only 53 doctors. The First District has formed one auxiliary with these 53 doctors' wives and they had a very successful meeting at Nags Head last summer. They have collected dues and feel as if they are active members of the State Auxiliary even if they cannot work together as well as some other branches where they are nearer together. The Fourth District has only one county to bring into the fold before they are fully organized, and the 3rd, 5th, 6th and 9th have two counties each keeping them from a 100% record.

Soon after convention time last May names of all officers, committee chairmen, District Councilors and county presidents were sent to the State office of the North Carolina Medical Society and to the National Auxiliary office.

The first place I went in an official capacity was the Rural Health Conference in Raleigh, June 7-8. This began a series of meetings for me that has given me an insight into the inside working of organizations working for better health in North Carolina. This has been a privilege and I never cease to be proud of the leaders in this field and of being a North Carolinian.

On June 12-14 with the other delegates from the Auxiliary I attended the National Convention in Atlantic City and gave the 1951 report for North Carolina of the work done when Mrs. Harry L. Johnson was president.

On Sunday, August 26, our Advisory Board from the Medical Society met in my home. This is the first time this has been done and seems most helpful. We discussed the goals the Auxiliary should have for this year and by putting our heads together and following suggestions from Mr. Leroy H. Cox, Public Relations Director of the Medical Society, we planned a more purposeful program than ever before. We have not attained all the goals, but we have them to add to next year and to keep us striving.

On September 23, our plans were given to the Executive Board of the State Medical Society meeting in Raleigh. With their approval we were ready to go to work.

The Fall Board meeting was held in the beautiful Planetarium Building in Chapel Hill on September 26, with Orange County Auxiliary wives as hostesses. We were honored to have Dr. Frederic C. Hubbard, president of the State Medical Society, and Mrs. Hubbard, Mr. James T. Barnes, executive secretary of the Medical Society, and Mrs. Barnes, Mr. Leroy H. Cox, Director of Public Relations for the State Medical Society, Dr. Rachel Davis, Chair-

man, and Dr. Olivia Abernethy of our Advisory Board from the Medical Society and Miss Elizabeth Kemble, Dean of the School of Nursing, University of North Carolina, present and speak to us. There were 16 past presidents, 22 state officers and committee chairmen, 9 councilors, 20 county presidents, making 96 people in all.

At this meeting, packets of material were given to each county president; officer, district councilor and committee chairman consisting of a Year Book with our projects and goals for the year, a constitution and by-laws, a sample of *Today's Health*, a sample form for securing resolutions against socialized medicine, and all reports, except the narrative ones, with dead lines, along with suggestions of ways to carry out the year's work. If anyone was absent her packet was mailed to her. This Board Meeting was an inspiration to me because of the number of people interested enough to come and because of the enthusiasm of the assembly.

This year we have three new committee chairmen—Civil Defense, Radio and Movies, and Newsheet chairmen.

One of the best aids for keeping our members informed is the Newsheet—"Auxiliary News," sponsored by Hospital Care Association of Durham for four issues this year. The first issue went to the press soon after our Fall Board Meeting and carried the minutes of the meeting to all of our 1458 members. The Newsheet has an attractive format with Auxiliary News—Auxiliary to the Medical Society, and our seal designed by Dr. Frederick R. Taylor when his wife was State Auxiliary president. We feel that the Newsheet is a credit to us and we are proud to send it to other State Auxiliaries, but its chief function is to keep us all informed. It carries a Blue Cross article in each issue, a letter from the president, county news, district news and special articles. It reaches each paid member.

As president of the Auxiliary I have attended or some Auxiliary member has attended for me, the following meetings:

October 5, 1951—The Infantile Paralysis District luncheon in Winston-Salem.

October 14, 15—Annual meeting of American Cancer Society, North Carolina Division in Asheville.

October 23—Advisory Council meeting of North Carolina Nursing Association in Greensboro.

November 15, 16—Annual meeting of the North Carolina Family Life Council in Asheville.

December 8—Commission for Financing of Hospital Care in Chapel Hill.

December 10—North Carolina Health Council meeting in Raleigh.

December 14—Public Relations Conference, Sir Walter Hotel, Raleigh. Auxiliary members were invited to be hostesses at a cocktail party after this meeting.

January 13, 1952—American Cancer Society meeting in Raleigh.

January 19—Nursing sub-committee—Commission for Financing of Hospital Care—Duke Hospital.

January 23—District meeting of hospitals, Raleigh.

February 15—North Carolina Women's Council meeting in Chapel Hill.

March 8—North Carolina Commission for Financing of Hospital Care.

March 10—American Cancer Society District Meeting, Burlington.

You can see that the president of the Auxiliary gets a liberal education in the health field.

The Auxiliary supports a bed in each of the three tuberculosis sanatoriums of the state. These beds are for the use of doctors, doctor's families, or nurses. At present our guest in the Stevens Bed at Western N. C. Sanatorium is Mrs. W. C. Ramsey,

a graduate nurse. Mrs. Holloman, a graduate nurse from Sanatorium, is occupying the McCain Bed at North Carolina Sanatorium and Dr. Frances Noblin is in the Cooper Bed at Wilson. We also have a Student Loan Fund from which a doctor's child may borrow \$500.00 a year for the last two years of his college course. No one is using this Fund at this time.

Mrs. Harry L. Johnson, First vice-president in charge of organization has set up a file of every doctor's wife in our organized counties. Information on these cards show qualifications for Civil Defense. We can furnish the State Civil Defense office with the number of nurses, technicians, etc., who would be available in case of all out war.

We have three projects sponsored by the Southern Medical Auxiliary—First, the Jane Todd Crawford Memorial Fund for scholarships in gynecology to which we contributed \$71.50 this year. Second, the observance of Doctor's Day. Most of the Auxiliaries celebrate Doctor's Day in some appropriate fashion. Third, collecting interesting papers on the lives of anyone connected with the medical profession and articles to be filed in the Southern Medical Auxiliary Research Library. We have sent a great many items to be preserved in this way.

As president I wrote an article for the Auxiliary page of the *North Carolina Medical Journal*, a letter to Auxiliary members in each newsheet and sent a letter to each member of the Executive Board at Christmas telling them what had been done at the State level to date.

I attended the 2nd, 4th, and 6th District meetings and Durham-Orange and Wake County meetings. I was sorry not to be able to go everywhere I was so cordially invited.

In January, Mrs. J. E. Wright, our president-elect, called to say she had a heart condition and she could not serve next year. It was then the duty of the Executive Committee to pick her successor. We hated to lose Mrs. Wright, we hope to have her later, but we are fortunate to have Mrs. R. D. McMillan, Sr., as president for next year.

The history of the Auxiliary to the Medical Society of the State of North Carolina was written by Mrs. Charles Gay and incorporated in the volume containing the histories of the Medical Auxiliaries of all 48 states, Hawaii and Alaska compiled by the Auxiliary to A.M.A. Mrs. Gay also wrote an article, "The Medical Society—Distaff Side," for *Community Health*, the news organ of Hospital Savings, Chapel Hill, with a picture of Mrs. P. P. McCain, organizing chairman.

The girl using a Nursing scholarship, started three years ago at James Walker Memorial Hospital, Wilmington, by the past presidents, graduates this May. We hoped to have her with us for luncheon on May 6. Unfortunately she graduates the same day and cannot be present.

I wish I could report all the accomplishments of our 44 branches. Each of them is doing outstanding work in their community. A few outstanding projects are: sponsoring a Community Health Council, nursing scholarships, sponsoring the Bloodmobile, making Cancer bandages and taking them to the homes and hospitals, Rotating Health records to schools, helping with county school lunch program, putting on essay contests for the County Medical Society in colored and white schools with monetary prizes of \$250.00 for white and \$250.00 for colored, furnishing linens for Cancer Institute. These are just a sample of the work that is being done. County Societies should make more use of the Medical Auxiliary in their county. We are anxious to help and will welcome any suggestions from the Medical Society.

I would like to take this opportunity to thank Mr. Barnes, Mr. Cox, Dr. Hubbard, Dr. Rachel Davis, Dr. Abernethy and Dr. Raney Stanford, our Ad-

visory Board, for the stimulation and help they have given us this year.

It gives me pleasure to bring to you a few of the accomplishments of the Auxiliary to the Medical Society of the State of North Carolina.

Respectfully submitted,

MRS. B. W. ROBERTS, President

Committee on Rural Health and Education

Since the time of our last report the Rural Health Committee has been expanded to include a member from each of our ten medical districts. The need of this expansion became apparent as increasing demands for attendance were heard from all segments of the rural population of our state. The results of the expansion have been gratifying. We now have a representative on our Committee who can interpret and activate our program on a local level and who is constantly available to report rural health conditions in the area demanding his attention.

The purpose of this Committee continues to be that of discovering the health needs of our country people and of helping them to fulfill these needs. This aim is simply stated, yet its fulfillment is complex. We all know that health is much more than medical care. In the rural field, it is a problem of education, economics, social and agrarian reform, plus the final factors of medical facilities and personnel. Rural health problems are individual with respect to separate communities and counties within our state, and with this fact in mind, our approach has been on individual and grass roots basis in all areas in which we work. This decision was wisely made some years ago, and dictates our course of individual county demonstrations based on particular needs rather than an over-all statewide scheme to be forced on all our country people. Accordingly, our approach to the problems of each of our demonstration counties has been different, but nonetheless useful. Our field worker and ablest representative, Miss Charlotte Rickman, is uniquely equipped to understand and carry out this idea of individual approach, and I may say that the successes of this Committee result entirely from her remarkable work.

Early last fall our Committee met in full attendance at Lake Lure, N. C., where policies and plans were thoroughly grounded in a day and a half of sessions. After full hearings, our decision was to continue our previous course of activities, with a plan of expansion based on the advice of a liaison committee to be made up of representatives of every organized segment of rural life in our state. This Advisory Committee has been selected and is now giving us full cooperation. With the guidance of our established Public Health Services plus the Rural Advisory Committee, we feel that no significant rural health problem will escape our attention.

The work begun in Robeson, our largest county, was carried on this year to such an extent that our help may now be discontinued. In this county we have learned that the formation of an inter-agency council, composed of all groups interested in rural problems, is a most potent course in initiating and maintaining a rural health program. We have found that simple coordination of many established groups will eliminate lost motion and assure success.

Thus far, the activities of this committee have been concerned with demonstrations in counties ranging from the foothills to the coastal regions; yet some of our most pressing rural health problems are found in the impoverished counties of the Appalachian mountains, and on our coastal plain. Therefore, the future plans of our Committee concern health planning demonstrations in these two needy regions. At the moment, our attention is centered on Halifax County, where the rural hospital unit at Scotland Neck has become defunct through a

combination of unfortunate circumstances, depriving a large number of people of needed hospital facilities. This Committee believes that, with proper organization and help, the people of this area can successfully solve the problem and so we plan to funnel our efforts into the Scotland Neck region during the next few months. There are similar pressing problems in our western counties which we will approach selectively during the coming year.

The highly successful Rural Health Conference held in Raleigh in June 1951, gave us access to the thoughts of rural representatives from all sections of our state, and in turn, gave our country people a fuller understanding of what we, as doctors and citizens, are trying to do for them. For the success of this conference credit should go to Dr. Henry B. Perry of Boone, N. C., presently doing graduate work at Johns Hopkins, and is unable to serve with us during the coming year. Our next conference is planned for the late fall and we anticipate cooperation from all groups in the rural field.

On a national level, we have maintained close contact with the Council on Rural Health of the American Medical Association, and have requested that the Rural Health Committee of the American Academy of General Practice act with us in coordinating our efforts. Our members have been active in speaking programs throughout the state and nation, and the National Rural Health Conference, held in Denver this year, was attended by an impressive number of delegates from North Carolina. We have assisted in publication of many articles of national circulation concerning rural health problems; and have worked individually on the question of rural physician placement within our state. We are deeply concerned with the problem of education of country doctors, and feel that our advice, together with that of other state rural health committees, should be utilized in the selection, training and placement of these men.

Finally, we believe that through continued interest and service we will be useful as an enduring public relations facility to the largest segment of our present day state and national population, since we seek only rural health improvement, implemented through honest principles of community self-help.

Respectfully submitted,
GEORGE F. BOND, M.D., Chairman
Committee on Rural Health and Education

[On motion, duly seconded and carried, the report was adopted.]

Committee on Emergency Medical Services

1. Organization of medical and allied personnel within the state having been completed to the satisfaction of the Committee prior to the 1951 meeting, the activities of the Committee on Emergency Medical Service during the past year have been confined to the procurement of equipment to handle the initial shock of an atomic catastrophe if such should strike.

(a) In December of 1951, the Committee on Emergency Medical Service met at the Governor's office with the Council of State and applied for and received an allocation of \$30,000.00 from the State of North Carolina. This amount was matched by a similar amount from the Federal government, making a total of \$60,000.00 for the purchase of medical supplies. Present also at the meeting was a representative from the Medical Division, Department of Civil Defense, U. S. Government. The medical supplies to be bought are those listed by the Medical Division, office of Civilian Defense as being the essential supplies needed in a catastrophe. We are able to purchase these through government surplus at about 15% of retail cost and we are therefore receiving approximately \$300,000.00 worth of sup-

plies, which it is estimated, will be adequate to prepare a total of 60 units to receive casualties on a large scale.

(b) We were assured by representatives from the Federal Government that this equipment would be shipped shortly after its purchase, but as yet we have not received this material. We expect it momentarily. It is to be stored, temporarily at least, in warehouse space allocated by the State Department of Public Health.

Respectfully submitted,
W. W. KITCHIN, M.D., Chairman
Committee on Emergency Medical Services

[On motion, duly seconded and carried, the report was adopted.]

Committee on Vocational Rehabilitation

In response to complaints during the past several years by North Carolina physicians against some of the policies of the North Carolina Department of Vocational Rehabilitation, the Medical Society of the State of North Carolina at its May 1951 meeting at Pinehurst appointed this committee to investigate the activities of the N. C. Vocational Rehabilitation Department. The complaints have mainly been about the sending of patients out of their local communities to distant hospitals for treatment, about giving aid to some who have been able to pay their own medical expenses and refusing it to others who are entitled to it, and about the hardship to the patients and their relatives caused by sending the patients to distant places for treatment, and about the unnecessarily comprehensive standards set up by the Department which have excluded all but a few of the larger medical centers of the state from participating in the program.

Your committee discovered the following facts: The N. C. Department of Vocational Rehabilitation is financed and conducted as a joint enterprise by the United States government, under an Act of Congress of June 2, 1920, and the North Carolina State Board of Vocational Education under acts of the North Carolina General Assembly of 1920 and 1923. The expenses of the organization for carrying out the purposes of this joint enterprise are paid by our state government, but 50% of the money actually spent for educational and medical rehabilitation of North Carolina citizens, under the above plan, is furnished by the Federal government. Therefore, the Federal government, in the final analysis, controls the operations of our State Department of Vocational Rehabilitation, because it helps to pay the bill. From a practical standpoint, this control is exerted by withholding, or threatening to withhold, federal money, if federal regulations are not carried out. Some states have thrown off this control by having the courage to refuse federal aid.

Supervision of our state Vocational Rehabilitation Department is in the hands of its Director, Mr. Charles H. Warren, appointed by the N. C. State Board of Vocational Education. The minimum standards of federal regulations provide that no North Carolina hospital can be used for this department's patients unless it has on its staff a general surgeon, an eye, ear, nose and throat specialist, a urologist and an orthopedic surgeon. Mr. Warren said that he considered Fellowship in the American College of Surgeons as sufficient evidence of qualifications of a staff physician in such hospitals. He was not familiar with the American Board of Surgery, and would not recognize certification by it.

Although Mr. Warren holds his job at the pleasure and discretion of the N. C. State Board of Vocational Education, he exercises complete control over the activities of his department. A Medical Advisory Committee, 17 in number, advises him on medical matters, including the selection of hospitals and physicians to treat people this agency chooses to treat. This committee is appointed by the director,

at this time, Mr. Warren, and may be discharged by him.

Mr. Warren said it is not necessary for a hospital to have a minimum of 100 beds to treat his patients, and that now two-thirds of the hospitals in the state treating Vocational Rehabilitation patients have less than 100 beds. He said that meetings of the Medical Advisory Committee are always well attended, that he leans heavily on the advice of this committee, but it is clear that he is not bound to accept, or even consider, this committee's advice.

The Vocational Rehabilitation Department considers it its duty to search for people in the state who are, in its opinion, in need of its help. Physicians in the state are expected to apply for the privilege of treating these patients.

About one million dollars a year is now being spent by this Department in this state for medical care. Mr. Warren said that his main concern is to secure for his patients the best medical care obtainable, but that he necessarily must stay within his budget, and therefore must carefully consider the costs of treating his people. Among other things, hospitals applying for a contract to treat Vocational Rehabilitation patients must furnish, with their application, an analysis of their per-patient, per-day costs.

Mr. Warren gave the impression of not having a very high regard for the skill and integrity of physicians in general. He said that about half of them tend to overestimate their professional skill.

During the 12 months this committee has been in existence, the number of hospitals, especially small hospitals, in this state which have contracts for treating Vocational Rehabilitation patients has greatly increased. This may be a coincidence.

This committee believes that much good has been done by the medical activities of the N. C. Department of Vocational Rehabilitation. The policies of this state agency are dictated by the Federal government, but we think they should be wholly controlled within the state. We believe that the total medical resources of this state should be more completely utilized in this work, and that a better job could be done if this Department were under the control of North Carolina physicians.

Respectfully submitted,

L. A. CROWELL, Jr., M.D., Chairman
Committee on Vocational Rehabilitation

[On motion, duly seconded and carried, the report was adopted.]

Committee on Venereal Diseases

The downward trend in new cases of syphilis has continued during the past year in the face of intensified case-finding activities. Reports of infectious syphilis have reached a new low. Mental hospital admissions have late effects of syphilis and also decreasing. Continued cooperation between private practice and local Health Departments show results in even greater progress in the future. Constant investigation is proving to be a highly effective tool in the production of decrease in all stages of syphilis.

Gonorrhea still remains a considerable problem. In spite of considerably effective therapy and active case-finding activities through constant investigation, there is no evidence of decrease in reported cases. The largest factor in the maintenance of high gonorrhea rates seems to be a poor validity of laboratory and clinical diagnosis, especially in the female. Treatment of gonorrhea on epidemiological evidence alone, associated with improved contact-tracing should help to overcome these deficiencies in our basic knowledge.

New and simplified syphilis treatment schedules have been made available in the past year. These schedules, and appropriate physical, seriological,

and spinal fluid follow-up should eliminate most of the late complications of syphilis. Treatment of gonorrhea and other "minor" venereal diseases should include dosages adequate to abort early syphilis.

The previously noted trend toward treatment of the venereal diseases by general practitioners has continued during the past year with increasing success. The planned closing of the Rapid Treatment Center at Durham will produce a greater shift of case load to the private physician, especially to the general practitioner.

Respectfully submitted,

R. BRYANT HARE, JR., M.D., Chairman

E. H. ELLINWOOD, M.D.

R. EUGENE FOX, M.D.

ROBERT F. YOUNG, M.D.

PERCY L. FREEMAN, M.D.

[On motion, duly seconded and carried, the report was adopted.]

Committee on Mental Hygiene

The Mental Hygiene Committee of the State Medical Society has had three meetings in the past year, one at Pinehurst and two at Raleigh. This committee would like again to direct the attention of the Insurance Committee of the State Medical Society to the fact that mental patients up to date only have a partial insurance coverage, and that, in general hospitals, who will not accept them, they should have the same insurance coverage as any other ill patient. We feel very strongly that they should have the same insurance coverage as any other ill patient, and that the coverage should be paid to a general, private, or state institution.

We would also like a resolution passed that the State Merit System review its salary schedules in mental health, in the light of existing economic conditions and personnel shortages.

We further recommend that the state Personnel Department and Budget Bureau be asked to consider upward revisions in the salary schedules of the hospital personnel in the light of existing economic conditions and personnel shortages bringing the salaries at least up to the level of Veterans Administration and other Federal agencies.

It is further recommended that the Department of Public Health be asked to enlarge its Advisory Committee to the Mental Health Authority and asked that the committee include psychiatrists, psychologists, social workers and lay people, all of whom make up the field of mental hygiene.

At the present time the state hospitals are sending out a report to referring physicians shortly after admission of patients, or at the time of staff review. They also furnish any special request to the referring physician to the extent of their ability. When personnel is available, we would like to request that they send a complete report to the referring physician at the time the patient is discharged from the hospital.

We would like again to call your attention to the large number of mental patients that are being held in our county jails. We feel that this could be greatly overcome if the general hospitals now being built by the Medical Care Commission would have psychiatric beds, and that these hospitals would be urged to accept these patients.

Respectfully submitted,

ALLYN B. CHOATE, M.D., Chairman

DAVID A. YOUNG, M.D.

R. BURKE SUITT, M.D.

LESLIE B. HOHMAN, M.D.

LLOYD J. THOMPSON, M.D.

EDWARD McG. HEDGPETH, M.D.

ROBERT L. GARRARD, M.D.

JOSEPH B. STEVENS, M.D.

ROBERT L. CRAIG, M.D.

MARK A. GRIFFIN, M.D.

THOMAS T. JONES, M.D.
HUGH A. MATTHEWS, M.D.

[On motion, duly seconded and carried, the report was adopted.]

Advisory Committee on School Health

This committee came into existence rather late in the year, and was appointed by President Fred Hubbard in December 1951. The membership of the committee was as follows:

DR. MARCUS EDWARD BIZZELL
DR. JAMES H. CHERRY
DR. H. H. BRADSHAW
DR. JOHN A. PAYNE, III
DR. EDWARD McG. HEDGPETH,
Acting Chairman

It was President Hubbard's idea that this group serve for the purpose of reviewing and advising on matters of mutual interest in the field of medicine and school health as they relate to the programs of the North Carolina School Health Coordinating Service (joint agency of the State Board of Health and the State Department of Public Instruction).

A meeting was called on February 13, 1952, in Chapel Hill. The committee met at the University Medical School, and there were present the following people:

1. Representing the Medical Society of the State of North Carolina—

Dr. H. H. Bradshaw, Winston-Salem

Dr. J. H. Cherry, Asheville

Dr. Edward Bizzell, Goldsboro

Mr. James T. Barnes, Raleigh

Dr. Edward McG. Hedgpeth, Chapel Hill

2. Representing the State School Health Program—

Dr. Clyde Irwin, State Superintendent of Public Instruction

Dr. Roy Norton, State Health Officer

Dr. C. C. Applewhite, State Board of Health

Mr. Charles Spencer, Director of School Health Services

The history of the school health program, its general aims and objectives were discussed by Dr. Irwin, Dr. Norton, Dr. Applewhite, Mr. Spencer and by the members of our advisory committee. Our overall impression was that it was a very worthwhile and instructive afternoon. Your committee busied itself primarily at this time with attempting to become better informed with the purposes and the functioning of this program.

At the end of the joint meeting our own committee went into executive session. We would like to report that we see the definite necessity for the medical profession to be instructed as to just what the school health program is, and we want to emphasize that in our opinion it is operated in every respect with principles consistent with free enterprise for medical service as such is available and practiced in this state. We feel that this is most important and want to assure you that there is no federal dictation, no federal funds used in this program and that it is entirely financed and operated at the state level. We would like to urge that where there has been proper screening as to remedial defects and economic inability of the family to pay for required medical services and where these facts have been properly established, that the medical profession participate wholeheartedly in the program.

We also would like to recommend that this program and its services be extended to encompass the pre-school child within the year of his legal eligibility to enter school. We also feel that in areas where there is no hospital or special services available to meet the needs of the child that a regional program might be worked out with the nearest

available hospital through the localities comprising the region rather than that the facilities and services be developed and administered at the top state level. It was the general thinking that there should be some minimal fee scale available for this work for the simple reason that in the past the bulk of the work has been done by a relatively small percentage of physicians and, therefore, an unfair amount of their time has been used. Certainly there should be some compensation for their efforts. This, we were assured, meets with the approval of the Director of School Health Services.

Your committee would like to emphasize again the importance of this work; first, as part of our responsibility for helping to provide remedial care for the physically handicapped child and, at the same time, we feel that this is a great opportunity in our field of public relations. We would like to strongly suggest and urge that the members of our Society take an active part in this program and that as individuals we do our share of this work. We feel that it is a highly worthwhile service to the future citizens of the State of North Carolina.

Respectfully submitted,

EDWARD McG. HEDGPETH, M.D.
Acting Chairman

[On motion, duly seconded and carried, the report was adopted.]

Report from Hospital Saving Association

This seventeenth annual report of Hospital Saving Association is a brief summary of one of the most successful years in the history of the Association.

The first report to this House of Delegates was made in 1936. At that time there were 14,395 people participating in the program and they were protected against hospitalization only. Also at this time the assets of the Association amounted to only \$15,750.65. The progress has been nothing short of miraculous since that time, and when these above figures are placed along side 433,918 people who are enrolled today, and with 399,524 of these holding Blue Shield certificates, and with total assets of \$2,021,977.00, one cannot help but be impressed. It tells in a clear, loud voice the desire of the people of North Carolina to manage their own economic problems in the field of medical care and not to turn to the federal government for this need. The people of this state are determined to be free to follow their own desires and maintain their self-respect. They want to be treated in their own hospitals and they want us to treat them and for us to be free to care for them dictated only by our own consciences and professional judgment. They want to be able to pay for this care themselves.

I believe you will also be interested to know that Hospital Saving Association this year passed the \$25,000,000 mark in claims paid to the hospitals and physicians of North Carolina. This represents \$1,000 paid in claims for every \$1 originally granted to the Association by the Duke Endowment. During this year alone the claims paid out to the hospitals of North Carolina amounted to \$3,372,896.03; to the physicians for Blue Shield claims \$1,579,351.92; also the Veterans Home Care Program handled 18,317 authorizations amounting to \$208,042.00; for a total claims paid during the year of \$5,160,289.95. This is big business and touches intimately the lives of thousands of people—both patients and physicians. As physicians we must be interested and become even better informed about such matters.

In the summer of 1951 the Association moved into a very fine new office building which it was able to construct at a very reasonable figure. It is a nice looking building of colonial-type architecture and located on West Franklin Street in Chapel Hill. The floor plan is functionally designed, and it is proving

its worth daily. It is a very valuable asset, and the Association extends to every one of you a cordial invitation to visit this home office any time you find it convenient.

The personnel of the Association and Board of Trustees have gladly spent countless hours of work and an untold amount of energy with Dr. Hart and the workings of his committee during the past year. I am proud to say that now this doctors' program is actually in force. It is my sincere belief that the Medical Society of the State of North Carolina has taken its most constructive and positive step to meet the challenge in medical economics of the low-income group. The efforts of social planners have not diminished in their determination to make the practice of medicine the next cornerstone of their social state. Many of you may not know that only recently the Murray-Dingle Bill has been reintroduced in the Congress of the United States and that Mr. Ewing's plan for government-supported medical care for those past age 65 who are under Social Security is also before our national legislative branch of the government. Mr. Oscar Ewing has probably been more active and made more speeches on the radio since January of this year than he ever has before in a comparable period of time. Our Society in launching its own program, in my considered opinion, has now gone on record in a most concrete way that it will do its part to meet this challenge. It has not been easy to this present stage of development nor will it be easy from here on; but the responsibility we owe our patients, our own integrity not only as physicians but as American citizens, and the heritage that we owe our children demand that individually and collectively we place our full support back of this program. We have, as physicians and as citizens, a tremendous and solemn responsibility, one which exceeds our own personal wishes, feelings, or differences of opinion. This program must be successful.

Respectfully submitted,
E. McG. HEDGPETH, M.D.
Medical Director

[On motion, duly seconded and carried, the report was adopted.]

The Speaker: Inasmuch as the hour is late, I feel that this group would like to adjourn for dinner and reconvene at eight o'clock in this room.

[The meeting recessed at five-forty o'clock.]

MONDAY EVENING SESSION

May 5, 1952

The First Meeting of the House of Delegates reconvened at eight-fifteen o'clock, the Speaker, Dr. Roscoe D. McMillan, presiding.

The Speaker: I ask the House of Delegates to please come to order. There were a few reports deferred until this evening's session. The first among those is the report of the Credentials Committee, Dr. Wingate M. Johnson, Chairman.

Dr. Wingate M. Johnson: Mr. Speaker, the Credentials Committee has two recommendations: The first is that the form of the card for delegates be changed slightly so that it would read that the delegate from each county society is the "official delegate to the House of Delegates of the Medical Society of the State of North Carolina, and entitled to be seated for the year 1953," and signed by the secretary of the County society.

The second recommendation is that we do away with the roll call, and, instead, let the Credentials Committee keep a list of delegates as they come in, so that when the delegate reports to the Credentials Committee, he is checked off and we will have an automatic roll call that way without having to take about half an hour of the time of the House of Delegates.

If it is in order, I make a motion that these changes be put into effect next year.

[The motion was seconded by Dr. Hemphill.]

The Speaker: All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

Next, we will have the report to be given by the Executive Secretary on the Executive Council activities during the past year.

Dr. John B. Anderson [Buncombe County]: I move its acceptance.

[The motion was regularly seconded.]

The Speaker: All in favor of accepting the report of the Executive Council please let it be known by saying "aye"; opposed, "no." So ordered.

The Speaker: The report of the Committee on the Coroner System, Dr. Wiley B. Forbus.

Dr. Wiley B. Forbus: You have in the report a very brief statement of the activities of your Committee during the past year that covers what we have been able to do in a simple way since the Legislature went out of session. I should like to say a word to you about our experience in the Legislature with our bill.

It was introduced late at the last meeting of the Legislature. It was late because there were certain important considerations that had to be dealt with. For example, we had to find what we thought was the proper route for the introduction of this bill. It took a considerable period of time to do that, but we finally succeeded, especially through the splendid efforts of Mr. Barnes, in finding the channel which we thought was, after all, the best channel that could possibly be used.

Your bill was introduced by the representatives from Johnston County, and specifically under the sponsorship of the coroner and certain other people interested in his business in Johnston County. We thought that was a favorable way to proceed.

The bill was at once, of course, turned over to one of the judiciary committees. We had our opportunity to appear before that committee and discuss the bill so that the committee had some understanding of what it was all about. The bill was then put in the hands of a subcommittee. It was redrafted. The provisions, however, were not changed essentially anywhere, and it was brought back to the committee.

By the time this was accomplished, the session was so late that it was the judgment of all the parties concerned that nothing could be accomplished at that session of the Legislature and, therefore, the bill was not reported from the committee.

I hasten to say to you that in all of the negotiations which we had, we met with no expressed opposition anywhere. That, of course, does not mean that there may not be opposition somewhere, but certainly that opposition did not raise its head during all of the procedures which we carried out.

That, then, is the status of the bill at the present time.

Your Committee, as you will see from the written report, has been at work. It is now a problem of making the necessary preparations, establishing the necessary contacts, and so forth, for the introduction and for following this matter at the meeting of the next session of the Legislature.

It is our plan at the present time to have that bill introduced as nearly as possible on the first day of the meeting of the Legislature. In this instance, I think that we shall not hesitate a moment to have the bill go under the sponsorship of this Society. I think there is no longer any need for a roundabout method of getting it before the people.

Here is where you come in. It is perfectly obvious to you that we need publicity, that we need contacts with people who have some influence in the communities in which you live, and so, in the name of the Committee, I am going to ask that each of you go back to your societies, your county societies,

or your bi-county societies, as the case may be, and bring the matter at once to the attention of the society. I would suggest that you set up a special committee for dealing with the matter and make it the business of that committee to make contacts which will be useful in the matter of favorable consideration of the bill in the House.

There is one other suggestion that I might make, and this, I think, surely will be something that is useful to everybody, not only from the point of view of accomplishing this legislation, but from the point of view of general education with respect to our problem. I would suggest that within the next months, you arrange for your society to be addressed at one of its meetings by a person who is well informed with respect to legislation of this sort, and that you invite to that meeting a variety of people in your community who may be interested in the bill or whose interest you may wish to cultivate in the bill.

Your Committee of the State Medical Society will cooperate with you in this respect and in any way that it is able to. If you will merely contact the Committee or the Chairman of the Committee, he will provide whatever help he can in that connection.

The newspaper editors are important. We had extraordinarily good, although limited, newspaper coverage at the time that our bill was in the Legislature.

The coroner in your county, of course, must know about this and he must be informed as to what his relationship to this system would be. The welfare office, the county health officer, are important, and if you have any contacts with the industrial commissioners or the courts, that is, the judges, it, of course, would be extremely well for us to have the matter brought to their attention.

The Speaker: Gentlemen, you have heard the report of Dr. Wiley B. Forbus on the coroner system.

Dr. George C. Crump [Buncombe County]: Mr. Speaker, I move we approve and accept it.

[The motion was seconded by Dr. John Anderson.]

The Speaker: All those in favor let it be known by saying "aye"; opposed, "no." The motion is carried.

Dr. W. A. Sams: Mr. Speaker, just going back over the program, I had the pleasure at dinner of meeting the delegate from Tennessee. He was not present this afternoon and he is here now, Dr. Daugh W. Smith. I would like to have you recognize him.

The Speaker: Gentlemen, the President of the Tennessee Medical Association, Dr. Daugh W. Smith, of Nashville, Tennessee, is our fraternal delegate from the State of Tennessee. Dr. Smith was not in the audience this afternoon when I was recognizing the visiting delegates, and it would be my pleasure now if Dr. Smith will come to the rostrum. Dr. Sams, it would give me pleasure to have you escort Dr. Smith to the rostrum and we will recognize him at this time.

Dr. Sams: Mr. Speaker, Members of the House of Delegates: As a native Tennessean, I am glad to welcome my neighbor and my friend from Tennessee. Dr. Daugh W. Smith, from Nashville, Tennessee.

Dr. Daugh W. Smith: Mr. Speaker, Members of the House and Friends: It is indeed a pleasure and an honor to be a guest of your Society. I was very much interested, even though I was late, to find out the nature of the bill which was being discussed. I find that you are in the process of trying to effect the same correction in this state that we are in Tennessee. We are working on the same project at the moment, to correct the coroner system in our own state.

Again, let me say, it is indeed a great pleasure and an honor to be with you. Thank you. [Applause]

The Speaker: Gentlemen, we are going to pass on now to an item under new business. Resolution:

"WHEREAS, Anesthesiology is a recognized branch of the practice of medicine as authorized under the laws of North Carolina, and

"WHEREAS, The Executive Council of the Medical Society of the State of North Carolina adopted a recommendation to this House of Delegates that a Scientific Section be established and a scientific program be devised for those in the practice of Anesthesiology; and that said program be staged at the 99th Annual Session of this Society to be held during the year 1953; therefore, be it

"RESOLVED by this House of Delegates that there is hereby authorized a grouping of Anesthesiologists to be recognized as the Scientific Section on Anesthesiology; that the existing organization of Anesthesiologists constituted by members in good standing of the Medical Society of the State of North Carolina be authorized to hereafter assemble and elect to the offices of said Section a chairman and a secretary to serve for a period of one year, terminating at the date of the 99th Annual Session of this Society; that the said Scientific Section be otherwise governed by the Constitution and By-Laws of the Medical Society of the State of North Carolina; and that the duly elected chairman of said Scientific Section be authorized to proceed to devise and state a scientific program for the year 1953 in cooperation with the Committee on Scientific Works and the Executive Secretary of this Society."

Dr. C. W. Bailey [Edgecombe-Nash]: I move that it be approved.

[The motion was seconded by Dr. Strosnider.]

The Speaker: All in favor of the resolution let it be known by saying "aye"; opposed, "no." It is so ordered.

Is Dr. Whitaker in the audience? [No response.]

The Speaker: I am going to ask Dr. Fred Hubbard, the President of the State Society, to assume the Chair for a few moments.

[President Fred C. Hubbard took the Chair.]

President Hubbard: Gentlemen, we will now hear a report from the Cancer Committee by our Speaker, Dr. Roscoe McMillan.

Dr. Roscoe D. McMillan: I have already submitted a report which I would like to supplement.

I would like to elaborate somewhat regarding the Wake County Medical Society's proposal and point out that the specific difference between the proposal to run their clinics and the accepted method of conducting the clinics now deals primarily with the Wake County Medical Society's desiring to see only the indigent patients in the diagnostic management clinics; whereas, in all other operating clinics everyone who comes to the clinic, regardless of finances, race, creed, or color, is seen in both the detection and the diagnostic management centers.

It was the recommendation of the Board of Directors of the North Carolina Division of the American Cancer Society that the Wake County Medical Society set up only a detection center and run it in accordance with the standard plan of operation for detection clinics as now conducted throughout the State.

With further report, the North Carolina Cancer Institute, after years of planning and months of work, was opened with fitting ceremonies on Sunday afternoon, March 23, 1952, for indigent terminal cancer patients. A portion of the former Robeson County Home for the Aged has been transformed into a building to care for these cancer victims. There are thirty rooms, each with twin beds, to care for patients throughout the State. The pleasant reception room leads into corridors painted in soft colors, blended with light shades used for the rooms.

A grant of \$50,000 from the 1951 Legislature of North Carolina paid for the alterations to the building. The operating cost must be provided by funds from the North Carolina Division of the American Cancer Society and other contributions from the various county units throughout the State, also the North Carolina Department of Public Welfare. We are progressing as satisfactorily as possible in the short time the Institute has been open.

Two Cancer Symposia have been held throughout the State. The first one was held at Winston-Salem last October and was sponsored by the Forsyth County Medical Society. A Symposium was held at the Gardner-Webb College which was sponsored by the Cleveland County Medical Society.

[Applause]

Dr. C. F. Strosnider: I move that we accept the report.

[The motion was seconded by Dr. J. B. Anderson.]

President Hubbard: All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it.

President Hubbard: Gentlemen, it is again my privilege to present the Speaker, who will report on the Constitution and By-Laws.

Dr. McMillan: Mr. President, as Chairman of your Committee on Revision of Constitution and By-Laws, I bring before this body a few changes. The Executive Council did approve these yesterday, but I feel that we should have the approval of the House of Delegates.

To dispel any reasoning or justification for either the State or Federal Government to reclassify the Society from its former classification of a scientific and educational nonprofit corporation and organization, to the classification of a trade organization, your Committee recommends that we amend Article 2 of the Constitution and By-Laws relating to the purposes of this Society, to delete the seventh phrase in the article which reads as follows: "and to the guarding and fostering of their material interest"; and insert as the first lines in the article the statement of incorporation in the paragraph of the laws of the State of North Carolina, 1799 and 1858, which incorporated the Medical Society of the State of North Carolina and which probably constituted legal charter.

And further to amend Chapter 4, Section 5, of the current By-Laws entitled "House of Delegates" for the purpose of deleting from the first and second lines of the same phrase, "as to the material interest of the profession," and to revise the paragraph to read as follows: "It shall consider and inform the public concerning matters of professional and scientific interests and matters affecting the practice of medicine and the people of the State and shall use this influence to promote the enactment and enforcement of necessary and proper medical and public health laws."

Dr. James H. McNeill: Mr. President, I move that the report be adopted and that the changes be made as recommended by the Committee.

[The motion was seconded by Dr. O. Norris Smith.]

President Hubbard: You have heard the motion and it has been seconded. All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it.

Dr. McMillan: Gentlemen, I have one or two other small items here in reference to the revision of the Constitution and By-Laws.

You have just heard this resolution that we adopted regarding the Anesthesiologists in the State organizing a Scientific Section. Therefore, it will be necessary to change the By-Laws as follows: Amend the By-Laws to include by name all scientific sections, adding the eleven sections instead of the ten sections which we now have, adding the word "eleven" and the word "anesthesiologists."

President Hubbard: What will you do with this amendment?

Dr. O. Norris Smith: I move its acceptance.

[The motion was seconded by Dr. Bailey.]

President Hubbard: All in favor let it be known by saying "aye"; opposed, "no." The "ayes" have it.

Dr. McMillan: One other one and then I think I will be through. The Committee has studied very carefully Chapter 8, Section 2, and in lieu of paying councilors \$25 per year for their travel throughout the state in the interests of the different councilor districts, we felt it would be better to amend Chapter 8, Section 2, by striking out the words "the sum of \$25 per year," and inserting in lieu thereof the words "actual cost of travel and personal maintenance for essential travel directed by the President or Councilor of the Medical Society of the State of North Carolina."

President Hubbard: All in favor let it be known by saying "aye"; opposed, "no." So ordered.

Dr. McMillan: Here is one more. We passed last year an amendment to the Constitution, Article 4, Subsection 4, Student Members. This was passed and must be passed on second reading by the House of Delegates.

Dr. Claudius McGowan: I move that it be adopted.

[The motion was seconded by Dr. C. F. Strosnider.]

President Hubbard: All in favor let it be known by saying "aye"; opposed, "no." It is so ordered.

[The Speaker, Dr. McMillan, resumed the Chair.]

Dr. O. Norris Smith: I move you that Councilors be reimbursed for telephone calls and telegrams.

[The motion was seconded by Dr. Harry L. Johnson.]

The Speaker: All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

Dr. Louten R. Hedgpeth: Mr. Speaker, I don't know the gentleman who won the Practitioner Award the second time. Perhaps he deserved to be Doctor of the Year twice. However, I feel one time is enough. That is one of the reasons we don't get enough interest in it. I would like to make a motion that when a doctor has won in a particular year, he would be ineligible to run for the second year. I may be wrong about it; if I am wrong, I am sorry. But I would like to make that motion. I think that one time is enough for any one man to be the Doctor of the Year in North Carolina.

[The motion was seconded by Dr. John A. Payne, III.]

The Speaker: All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

We come to the important part of organizing a Nominating Committee for next year—bringing in their report at the meeting in 1953.

You are entitled to one member of the Nominating Committee from each councilor district. We are going to recess for ten minutes while you caucus and present one name from your district as a member of the Nominating Committee for 1953.

[Recess.]

The Speaker: The Chair is ready to receive the report of the First District for the man on Nominating Committee.

Dr. John A. Payne, III, will be a member of the Nominating Committee for next year from the First District.

The Second District. **Dr. W. C. Piver,** Washington.

The Third District. **Dr. Graham Barefoot,** of Wilmington.

The Fourth District. **Dr. Henderson Irwin,** of Eureka.

The Fifth District. **Dr. J. S. Milliken,** Southern Pines.

The Sixth District. **Dr. Reece Berryhill,** of Chapel Hill.

The Seventh District. Dr. Claude Squires, Charlotte.

The Eighth District. Dr. George Holmes, Winston-Salem.

The Ninth District. Dr. Tom Thurston, Salisbury.

The Tenth District. Dr. J. B. Anderson, Asheville.

The Chair will appoint Dr. Reece Berryhill temporary chairman of the Committee for 1953 and urge Dr. Berryhill to call his committee together at this session and get instructions from the Secretary who will outline the duties and responsibilities of this committee that is to report back to the 1953 session of the House of Delegates of the Medical Society of the State of North Carolina.

Next on the agenda is unfinished business.

We will adjourn, unless there is something some member wants to bring before the House of Delegates.

[It was regularly moved by Dr. C. F. Strosnider, seconded and carried that the meeting adjourn.]

The Speaker: I declare this, the first session of the House of Delegates adjourned until Wednesday afternoon at two-thirty o'clock.

[The meeting adjourned at nine-fifty o'clock.]

WEDNESDAY AFTERNOON SESSION

May 7, 1952

The Second Meeting of the House of Delegates convened at two forty-five o'clock in the Small Cardroom, the Speaker of the House, Dr. Roscoe D. McMillan, presiding.

The Speaker: The meeting of the House of Delegates will please come to order.

We will now consider the report of the Nominating Committee of the state to serve for 1952-1953. Dr. Holmes is Secretary of the Committee.

Dr. George Holmes [Forsyth County]: Gentlemen, I give you herewith the Report of the Nominating Committee of your State Medical Society.

For your President-Elect, Dr. Joseph A. Elliott, of Charlotte.

For your Secretary-Treasurer, Dr. M. D. Hill, of Raleigh.

For your First Vice President, Dr. George Paschal, of Raleigh.

For your Second Vice President, Dr. John Bender, of Winston-Salem.

Now we go to our Councilors and Vice Councilors.

First District, Dr. Zack Owens, of Elizabeth City; Vice Councilor, Dr. T. P. Brinn, of Hertford.

Second District, Dr. James S. Rhodes, Jr., of Williamston, Councilor; Dr. J. C. Peele, of Kinston, Vice Councilor.

Third District, Dr. Donald B. Koonce, of Wilmington, Councilor; Vice Councilor, Dr. Amos Johnson, of Garland.

Fourth District, Dr. John G. Raby, of Fayetteville, for Councilor; for Vice Councilor, Dr. Robert Whitley, of Rocky Mount.

Fifth District, Dr. Joe Hiatt, of McCain, Councilor; Vice Councilor, Dr. R. M. McMillan, of South-ern Pines.

Sixth District, Dr. Arthur London, of Durham, for Councilor; for Vice Councilor, Dr. Clarence E. Gardner, of Durham.

Seventh District, Dr. John Ormand, of Monroe, Councilor; Vice Councilor, Dr. Leslie Morris, of Gastonia.

Eighth District, Dr. O. Norris Smith, of Greensboro, for Councilor; Dr. Harry Brockmann, of High Point, for Vice Councilor.

Ninth District, Dr. John Reece, of Morganton, for Councilor; for Vice Councilor, Dr. Jake Shuford, of Hickory.

Tenth District, Dr. W. A. Sams, of Marshall, for Councilor; for Vice Councilor, Dr. Burnice E. Morgan, of Asheville.

Your Nominating Committee presents as candidate for member of the North Carolina Board of Nurse Examiners, representing the Medical Society of the State of North Carolina, Dr. Louten Hedgpeth.

Delegates from the Medical Society of the State of North Carolina to the American Medical Association for a term of three years: Dr. C. F. Strosnider, Dr. B. O. Edwards; and Dr. M. D. Hill is automatically a delegate to the American Medical Association by virtue of his office.

For alternate delegates, Dr. Paul Whitaker, Dr. William Nicholson, and Dr. Grady Dixon.

One delegate to the 1953 meeting of the North Carolina Dental Society, the nominee is Dr. Reece Berryhill.

Fraternal delegates to the 1952 meeting of the Medical Society of Virginia: Dr. J. E. Smith, Dr. D. B. Armistead, and Dr. Ghio W. Suiter.

Fraternal delegates to the State Medical Society of Georgia: Dr. Elias Faison, Dr. F. L. Knight, and Dr. Eugene Stead.

Fraternal delegates to the meeting of the Medical Society of South Carolina: Dr. Tom Byrnes, Dr. Fred Nash, and Dr. R. C. Thompson.

Fraternal delegates to the meeting of the Tennessee Medical Society: Dr. Hugh Matthews, Dr. Thomas Stringfield, and Dr. W. A. Sams.

Recommendation regarding place for the 1953 session of the 99th Annual Session of the Medical Society of the State of North Carolina. Your Committee recommended the Carolina Hotel, Pinehurst, North Carolina, the date to be set by the Executive Council of your Society.

For Speaker of the House of Delegates: Dr. Roscoe D. McMillan. Dr. Paul Whitaker as the Vice Speaker.

The Speaker: Gentlemen, you have heard the report of the Nominating Committee. What shall be done with it?

Dr. Claude Squires: I move it be adopted.

[The motion was seconded by Dr. Charles Harris.]

The Speaker: Is there any discussion? Are you ready for the question? All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

Is there any unfinished business to come before the body?

We come down to final ratification of the By-Laws, which means the second reading of the amendments which were presented to the House of Delegates on Monday evening, and again this morning to the Second General Session.

Dr. W. A. Sams: I move that they be passed on third reading and be made final and a part of our Constitution and By-Laws.

[The motion was seconded by Dr. E. R. Hipp, Mecklenburg County.]

The Speaker: All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

Report of the Committee to Review the Two Messages from the President, Dr. Bahnson Weathers reporting.

Dr. Bahnson Weathers: The Committee appointed to give this report met this morning and reviewed the recommendations made to the House of Delegates in your President's Annual Message to the House, and, after thorough study, we come back with the report that these recommendations by your President be adopted.

If it is not out of order, we would like to include some of the recommendations that he made in his Presidential Address last night, particularly to the effect that the doctors be better citizens by taking a more active part in their religious, civic, political and social functions of their communities. We recommend that these recommendations be adopted.

Dr. James H. McNeill: I move the adoption of the report.

[The motion was seconded by Dr. George Holmes.]

The Speaker: All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered.

I am going to ask the Executive Secretary to read a request that has come from one of the sections.

Mr. Barnes: This is a resolution that was passed on May 6 by the Academy of Preventive Medicine and Public Health of North Carolina, and has come to the President of this Society. The resolution reads as follows:

"WHEREAS, There is an acute shortage of individuals trained in the public health skills in North Carolina, to the extent that in some categories of such skills North Carolina ranks well below the average for the Nation, and

"WHEREAS, The School of Public Health of the University of North Carolina is the only source of academic training in such skills in the State and one of the few in the Southeastern region, and

"WHEREAS, The National Committee for the Medical School Survey in its recommendations to the Board of Trustees of the University of North Carolina stressed the urgent necessity for the continued development of the School of Public Health and its integration with the expanded Schools of Medicine and Pharmacy and the new Schools of Dentistry and Nursing in order to meet the health needs of the State, and

"WHEREAS, The present Public Health and Medical Building, which was made possible largely through the efforts of the School of Public Health, is now needed entirely by the expanded School of Medicine, and

"WHEREAS, The School of Public Health is now so inadequately housed as to be severely limited in its ability to fulfill its proper role in the Division of Health Affairs of the University or its obligation to meet the needs of the State for trained public health workers; now, therefore, be it

"RESOLVED, That the North Carolina Academy of Preventive Medicine and Public Health express as its strong recommendation an earnest hope that the University of North Carolina make budgetary

provision in the next biennium for the completion of the building of the School of Public Health; and be it further.

"RESOLVED, That the Academy pledge its full support to any move to secure funds for such construction; and be it further

"RESOLVED, That copies of this resolution be sent to the President of the University of North Carolina, the Medical Society of the State of North Carolina, the North Carolina Dental Society, and the North Carolina Public Health Association."

Dr. Bahnson Weathers: I move it be accepted.

[The motion was seconded by Dr. Elias Faison.]

The Speaker: All in favor of the motion let it be known by saying "aye"; opposed, "no." So ordered. Gentlemen, the Chair is going to read something from our attorney, which I think should be passed on to you gentlemen for consideration.

"I think the House of Delegates at their afternoon session Wednesday ought to be urged to see that the local and county societies improve their contacts with the candidates for the Legislature, both before and after the May primaries. It would also help tremendously if you could get the same message over to the Executive Council if it meets again this week. If we do not get this message over at this time to the local societies it would be necessary for you to call every member of the Council on the telephone after you get back home."

The Speaker: Gentlemen, you have heard some very valuable information from Dr. Sams, and I hope you will take it in and go back to your respective districts and do what is being urged along these lines, because we need it and need it badly.

Is there anything else to come before the House of Delegates? If not, the Chair will entertain a motion to adjourn. This is the final session of the House of Delegates.

Dr. Sams: I move we adjourn.

[The motion was regularly seconded and carried, and the House of Delegates adjourned at three-fifteen o'clock.]

GENERAL SESSIONS

FIRST GENERAL SESSION

Tuesday Morning, May 6, 1952

The First General Session of the Ninety-Eighth Annual Session of the Medical Society of the State of North Carolina was called to order in the Ball Room of The Carolina, Pinehurst, at nine-thirty o'clock, by Dr. Millard D. Hill, Chairman, Committee on Arrangements.

Dr. Hill introduced Dr. Adam W. Craig, Minister of the Episcopal Church, Pinehurst, who rendered the invocation.

Dr. Hill: At this time, I would like to recognize the visiting delegates and let them stand.

Dr. Charles Outland, from Virginia. [No response]

From Georgia, Dr. M. A. Hubert, Athens; Dr.

W. B. Schaefer, Toccoa; Dr. R. Lee Rogers, Gainsville. [No response]

Dr. D. W. Smith, from Nashville, Tennessee.

President of the Tennessee Medical Society. I would like for him to stand. [No response]

Dr. Glenn L. Hooper, of the North Carolina Dental Society. [No response]

Dr. Hill: At this time I would like to turn the meeting to your President, Dr. Fred C. Hubbard.

[The President, Dr. Frederic C. Hubbard, took the Chair.]

President Hubbard: The first item on the agenda is the report of the Committee on Scientific Awards, by Rowland T. Bellows, M.D., Chairman of the Committee.

Dr. Rowland T. Bellows: Mr. President, up until this year, this Committee had one award to deal with. This year we are presenting two awards and are judging a third at this year's meeting, so next year there will be three awards.

There is the old and established Moore County Medical Society Award, which has been awarded annually since 1927. There is the newly-created (a year ago) Wake County George Marion Cooper Award, which Dr. Doshier of Wilmington, a member of the Committee, will award following the immediate award; and there is the newly-being-created award by Gaston County for Visual Media, which includes motion pictures, technical and scientific exhibits, lantern slides, anything in which the primary media of the presentation is by visual means.

Moore County Medical Society established this annual award for the outstanding essay presented at the previous year's meeting of the State Medical Society. Having had the honor of bestowing this award for several years, I have been impressed with the increasing number of papers of excellence which have been produced each year.

The paper which the Committee has selected for the award this year was exceptional in a number of respects. The Committee is unanimous in selecting it and appraising it as a literary production, and commending it for its literary qualities. It was

beautifully written and well prepared. The title of this paper is "A Simplified Modification of Staining the Vaginal Smear for Immediate Appraisal of Endocrine Activity." This paper was written by a general practitioner in the small town of Marshville. It concerns a subject of interest and importance both to the specialist in gynecology and obstetrics and also to the general practitioner whose time and facilities for laboratory work are limited. As such, it is an entirely original contribution. It shows evidence of much study and research. Competent advice is that it is practicable and useful.

The Committee recommends that you read it. It has been published in the *State Journal* for February of this year. We have just learned today that the Committee is not alone in its selection of this paper as an outstanding piece of work. The author advised me this morning that he had received requests from the Chilean Educational Commission for permission to use this in Chile.

The author of this paper is Dr. John P. U. McLeod.

[Dr. Bellows presented the award to Dr. John P. U. McLeod.]

President Hubbard: Thank you, Dr. Bellows. We all understand, of course, that this matter of awards for scientific work is one of the most important activities of the Society, a matter which requires a lot of thought and time on the part of the members who serve on that Committee. At this time, Dr. Doshier will present the George Marion Cooper Award.

Dr. William S. Doshier: Ladies and Gentlemen: In view of the fact that this is the first year that this award has been made, I thought perhaps it would be apropos to review briefly the life of the man in whose honor this award is to be given.

Of course, practically everyone here knows who Dr. George Marion Cooper was. I do particularly, because he comes from my section of the state and some of his people live in the city in which I reside, and we felt he was very much a part of our City of Wilmington.

Dr. Cooper was born in 1876 in Clinton, Sampson County. He graduated from the University College of Medicine, which is now a part of the Medical College of Virginia in Richmond. He began his practice of medicine with Dr. Holmes in Clinton in 1905. He practiced with Dr. Holmes until about 1915. From about 1912 to about 1915, he was part-time health officer for Sampson County.

In 1915, he became full-time health officer of Sampson County, being one of about five in the entire State of North Carolina. Between 1912 and 1915, he became a full-time health officer, during which time he did some of the first work that was done in this state in the immunization against typhoid fever with typhoid vaccine.

In 1915, he went to the State Board of Health as head of rural sanitation. Since 1915 and to the time of his death in 1950, his entire life was spent with the Health Department of the State of North Carolina. He has served in various capacities, at one time Acting State Health Officer, and for many years Assistant State Health Officer, and I believe it can be truthfully said there is no man in North Carolina who realized the medical needs of the people of North Carolina any more than did Dr. George Cooper.

He had many fields of interest, but his greatest opportunity and his greatest love, I am sure, was in the field of maternal and child welfare. So outstanding has been Dr. Cooper's work over these years that in 1942 the University of North Carolina chose him as the recipient of the Degree of Doctor of Law.

His life's work was ably summed up in the citation at the time this degree was awarded him and

I will read to you the citation:

"George Marion Cooper of Sampson County, Nationally distinguished as a public health officer, quiet and unassuming, but relentlessly effective. He has as state medical health officer served for a longer period and in more fields than any other person. He has been a leader in the practical programs for the medical care of the poor and has worked courageously to lift North Carolina from the disgrace of its high birth mortality of children and mothers. His work pioneering in America both for the improvement of the health of the school children through the free dental and cancer clinics and for the improvement of the health of mothers and the birth of children has become and continues to be an example to this and other nations and a benefaction to this and succeeding generations."

In recognition of this outstanding work, the Wake County Medical Society wished to endow an award to be presented each year before this Society and to a member of this Society for a paper written in the interests of maternal and child welfare, preventive medicine, or public health.

We on the Awards Committee judged these papers and we have made the award this year to Dr. Donald L. Whitener, of Winston-Salem. Dr. Whitener has written a very able paper on "The Management of Labor and Delivery in the Interest of the Premature Infant." Dr. Whitener is a North Carolinian, working in Winston-Salem, and is connected with the Bowman Gray Medical School. Dr. Whitener, will you come forward?

Dr. Whitener, the Fellows of the Wake County Medical Society, present the George Marion Cooper Award, established in honor of George Marion Cooper, physician and health benefactor. This certificate is awarded by the Fellows of the Wake County Medical Society as a token of appreciation and esteem in recognition of the eminence of an essay contributing to the knowledge and advancement of the science of medicine in the field of preventive medicine, public health or maternal and infant health care, presented before the Medical Society of the State of North Carolina. I congratulate you.

Dr. Donald L. Whitener: Thank you very much. [Applause]

President Hubbard: I am sure this was a very fitting way in which to remember Dr. Cooper, whose life and work are enshrined in the hearts of all of those who knew him.

The next item on the program is a paper from the Section on General Practice of Medicine and Surgery. I will ask Dr. Cozart, the Chairman of the Section, to come forward and introduce the speaker.

Dr. Wiley S. Cozart: Ladies and Gentlemen of the North Carolina Medical Society: The section on General Practice of Medicine and Surgery is indeed grateful to bring to you this morning a message from Mac F. Cahal, Executive Secretary of the American Academy of General Practice of Medicine. Mr. Cahal has been Executive Secretary of the Academy of General Practice of Medicine since its organization in 1948.

He is a graduate of the University of Kansas and took his law degree at DePauw University. He has served as Executive Secretary of several midwestern medical associations. A great parliamentarian, a great master of ceremonies. Mr. President, I present to you from the Section of General Practice of Medicine and Surgery Mac F. Cahal, who will speak to you on the subject, "Caution—Curves Ahead."

[Mr. Cahal read his address.]

[Abstracts from this address will be presented in future issues of the North Carolina Medical

Journal.

President Hubbard: I now have the pleasure to present Dr. Donald B. Koonce, Chairman of the Section on Surgery.

Dr. Donald B. Koonce [Wilmington]: Ladies and Gentlemen: It is with a great deal of pleasure that I introduce to you Dr. Nathan Womack, Professor of Surgery, University of North Carolina.

[Dr. Nathan Womack presented his paper on "The Use of Gastric Analysis in the Diagnosis of Surgical Disease."] [Applause]

President Hubbard: Thank you, Dr. Womack. Dr. Deryl Hart, head of the Department of Surgery at Duke University, Durham, will discuss Dr. Womack's paper.

[Dr. Hart discussed the paper presented by Dr. Womack.]

"The Use of Gastric Analysis in the Diagnosis of Surgical Disease," by Dr. Nathan Womack, Chapel Hill

Dr. Deryl Hart [Durham]: Mr. President, Members and Guests: It is a pleasure to discuss Dr. Womack's paper. As a matter of fact, there will be little discussion as the paper speaks for itself. In the course of very rapid developments in medicine, both from the standpoint of technical procedures and the increase in scientific knowledge, many diagnostic tests and procedures are discarded, and many new ones are developed. I need only to mention some of those that were used when I was a student: Blowing up the stomach with Seidlitz Powders to see how large it was; the string test to see where the point of bleeding was located; the giving of raisins at night to see if they were retained in the stomach next morning, to see the amount of retention; emptying the stomach in the morning to get the quantity, to see how much retention there was—all of these were procedures that were routinely used. It is the rarest thing to see any of those procedures used today. We have procedures to tell us the size of the stomach, the retention, the location of the ulcer, and so forth, by x-ray, that are more accurate than those procedures, and, therefore, they have been replaced.

Dr. Womack's paper illustrates the changes in the long-established procedure necessary to bring it out of the discard and adapt it to present increased scientific knowledge.

As to how thoroughly it will be possible to evaluate the type of operations that are indicated with different patients, whether the time-honored stomach resection or whether the more time-honored gastroenterostomy, aided and abetted by the vagotomy, will bring the gastroenterostomy back into more general use rather than resection, remains to be seen. We will all wait with interest to see the follow-up on these patients which Dr. Womack has told us about, and I think the greatest justification for carrying out such experiments with patients is to give all other patients in subsequent years the advantage of long-time follow-ups. That, I am sure, we will get.

President Hubbard: I want to thank Dr. Womack and Dr. Hart for this very fine presentation.

Ladies and gentlemen, we are greatly honored and highly privileged to have with us throughout our session the President of the American Medical Association. At this time I have great pleasure in presenting to you Dr. John W. Cline, President, of San Francisco, California.

[The audience arose and applauded]

[Abstracts of the address will appear in future issue of the North Carolina Medical Journal.]

President Hubbard: I am sure I express the sentiment of the members of the North Carolina Medical Society when I express to Dr. Cline our deep appreciation of his visit and we deeply appreciate his fine message.

Ladies and gentlemen, it now gives me pleasure to present to you Dr. Ebbe C. Hoff, Professor of Neurological Science, Medical College of Virginia, and Medical Director of the Division of Alcohol Studies and Rehabilitation of the State Department of Health at Richmond. Dr. Hoff will speak to you on "A New Approach to the Care of Alcoholics at the State Level."

Dr. Ebbe C. Hoff addressed the Society.

[Abstracts from this address to appear in future issue of the North Carolina Medical Journal.]

[Dr. Arthur L. Daughtridge, Second Vice President of the Society, took the Chair.]

Vice President Daughtridge: Thank you, Dr. Hoff, for that very interesting talk.

The Chair at this time would like to recognize a visitor. He is President of the Jefferson Medical Alumni Association. We are happy to have him with us—Dr. M. C. Rumbaugh. [Applause]

The next paper will come from the Section on Neurology and Psychiatry, and is entitled "Hindsight and Foresight in Psychiatric Medicine," by Dr. George C. Ham, Professor of Psychiatry, University of North Carolina, Chapel Hill. Dr. Ham!

[Dr. George C. Ham presented his paper on "Hindsight and Foresight in Psychiatric Medicine."]

Vice President Daughtridge: We will now recognize Dr. David R. Young, of Raleigh, for discussion of this paper.

[Dr. David R. Young read his discussion of Dr. Ham's paper.]

Vice President Daughtridge: Thank you, Dr. Ham, and Dr. Young.

Next on the program will be a paper from the Section on Radiology, under the Chairmanship of Dr. George J. Baylin. The speaker will discuss "Abnormalities of Canalization of the Gastro-Intestinal Tract." It is now our pleasure to recognize Dr. Edward B. Neuhauser, who will speak to us.

[This address to appear in separate monthly issue of the North Carolina Medical Journal.]

Vice President Daughtridge: Thank you, Dr. Neuhauser.

The next presentation will be from the Section on Pathology, the paper entitled "The Role of the Bronchial Artery in Pulmonary Disease," by Dr. C. Bruce Taylor, of Chapel Hill. Dr. Taylor!

[Dr. C. Bruce Taylor presented his paper on "The Role of the Bronchial Artery in Pulmonary Disease."] [This address to appear in future issue of the North Carolina Medical Journal.]

Vice President Daughtridge: Thank you, Dr. Taylor, for that excellent presentation.

I now recognize Dr. Verne Caviness, who will make a report on the Wake County Medical Society Public Relations Program. Dr. Caviness!

[Dr. Verne S. Caviness read his paper on the Wake County Medical Society Public Relations Program.]

Vice President Daughtridge: Dr. Caviness, I would certainly like to congratulate you and your Society on the excellent public relations program you have established. I think it should serve as a model for other societies to study and emulate.

We will now adjourn until the session tomorrow morning at nine o'clock.

[The meeting adjourned at one forty-five o'clock.]

BANQUET SESSION

Tuesday, May 6, 1952

The annual banquet of the Society was held in the dining room of the Hotel Carolina, presided over by Dr. W. Reece Berryhill as Toastmaster for the occasion.

The distinguished guests of the evening were introduced by Dr. Berryhill.

Toastmaster Berryhill presented Dr. Frederic C. Hubbard who delivered the Presidential address to the Society. (Published in the *North Carolina Medical Journal*.) Following the address Dr. Berryhill recognized Dr. McTyeire G. Anders and Mrs. Anders of Gastonia who has been a member of the Society for fifty years and who on this date mark the fiftieth wedding anniversary.

In view of his long association and personal friendship with Dr. Hubbard, Dr. James H. McNeill was recognized by Toastmaster Berryhill. Dr. McNeill very fittingly presented the President's Jewel to Dr. Hubbard, which token is awarded by the Society annually in appreciation and gratitude to its retiring President.

Toastmaster Berryhill next introduced the guest speaker of the evening, Dr. John W. Cline, President of the American Medical Association, of San Francisco. (Dr. Cline's address will appear in issues of the *North Carolina Medical Journal*.)

Following the address of Dr. Cline, the banquet adjourned with announcements of the floor show scheduled for ten o'clock and the President's Ball scheduled for eleven in the evening, the Ballroom of the Carolina.

SECOND GENERAL SESSION

Wednesday Morning, May 7, 1952

The Second General Session was called to order at nine-fifteen o'clock by President Hubbard.

President Hubbard: Ladies and Gentlemen, we will come to order and begin the Second General Session. I am going to reverse the order of the program slightly and ask Dr. William L. Venning, Jr., to come to the rostrum and announce the speaker and his subject.

Dr. William L. Venning, Jr.: We are indeed fortunate to have Dr. Wilburt C. Davison with us, talking on "Cancer in Childhood." Dr. Davison goes to Old Point Comfort where he is to address the American Pediatric Society. We are privileged to hear from our good friend, Dr. Wilburt Davison. [Dr. Davison presented an address which will appear in a subsequent issue of the *North Carolina Medical Journal*.]

President Hubbard: Thank you, Dr. Davison, for this very fine and valuable contribution to our program this morning.

[Vice President Daughtridge took the Chair.]

Vice President Daughtridge: Our next paper will come from the Section on Ophthalmology and Otolaryngology, under the chairmanship of Dr. Arnold.

Dr. Ralph A. Arnold [Durham]: Mr. Chairman and Members of the General Session: It gives me great pleasure to introduce Dr. Beverly Armstrong from Charlotte Eye & Ear Hospital. We thought that a paper on vertigo, a thing that gives us all a great deal of trouble in diagnosing, treating and handling patients, would be very worth while for the General Session. Dr. Armstrong happens to be one, having come to North Carolina by choice rather than by birth, and I think he will present a paper that will be of interest to all of you.

[Dr. Beverly Armstrong presented his paper on "Vertigo."]

Vice President Daughtridge: Thank you, Dr. Armstrong, for this very timely discussion on vertigo.

Our next paper will come from the Section on the Practice of Medicine, and I will ask Dr. George Harrell, Chairman of that Section, to present the speaker.

Dr. George T. Harrell [Winston-Salem]: Mr. Chairman, Ladies and Gentlemen: The subject of the next paper is one of increasing importance. The availability of extremely potent physiological materials, such as the adrenal cortical hormones, has placed in the hands of the physician an instrument

which is useful in the treatment of certain conditions, but which is usually a double-edged sword and may also have some most unfortunate side effects. In order to bring to your attention some of these undesirable effects, we have asked one of the young men of increasing stature in the state to present this material to you for discussion.

Dr. Samuel P. Martin grew up in a small town in Missouri, the son of a general practitioner. His training at the undergraduate level and at medical school level was at Washington University in St. Louis, where he had his internship and assistant residency in medicine. He then came to this state as resident in medicine at Duke University. Following this, he had a post-graduate experience at the Rockefeller Institute with Dr. Rene Dubois, who is one of the world authorities in bacterial metabolism and the study of bacteriology.

At the present time, Dr. Martin is Assistant Professor of Medicine in the Duke University School of Medicine. It is of considerable interest that he has recently been selected as one of a small group of scholars of promise in the United States by the Markle Foundation, to serve as potential leaders in academic medicine during the coming generation. It is also of considerable gratification to Dr. Martin and to me to learn that yesterday he was elected to the American Society of Clinical Investigation, one of the marks of achievement of stature in a young professor. It is a great pleasure to present Dr. Samuel P. Martin, of Durham. [Applause]

[This paper will be published in the *North Carolina Medical Journal*.]

Vice President Daughtridge: Thank you, Dr. Martin, for this timely discussion. The next paper comes from the Section on Gynecology and Obstetrics, and I will ask Dr. Adam Thorpe, Chairman, to present the speaker.

Dr. Adam T. Thorpe [Rocky Mount]: Our speaker is another North Carolina man who has made good away from home. He went to the University of North Carolina, finished his medicine at Johns Hopkins where he had his residency, and then he was associated with McGill and, at the present time, he is at the State University of New York. I am happy to present Dr. Charles Flowers, who is going to talk about the "Transfer of Anesthetic and Analgesic Agents Across the Placental Barrier." Dr. Flowers!

[Dr. Charles E. Flowers read his paper on "Transfer of Anesthetics and Analgesic Agents Across the Placental Barrier."]

Vice President Daughtridge: Thank you, Dr. Flowers. We all enjoyed your excellent presentation.

The next paper is from the Section on Public Health and Education, Dr. O. David Garvin, Chairman, Dr. Garvin will present the speaker.

Dr. O. David Garvin [Chapel Hill]: Mr. Chairman, Ladies and Gentlemen: I appreciate this opportunity to state the next topic for discussion and introduce the speaker. I think it is very fitting that we consider chronic illness in an aging population, especially when we have a program that includes the complications of child bearing and continues through and gives consideration to others in the population.

Perhaps you don't realize that there has been a 43 per cent increase in persons in the North Carolina general population 65 years of age and older, during the past ten years. To discuss the topic, "Chronic Illness and the Aging Population," we have with us another North Carolinian by choice, an alumnus of Vanderbilt University, whose special training is in the field of medicine and clinical investigation. He was a member of the faculty of the School of Public Health in Chapel Hill for a number of years prior to 1945. Since that time, he has been a professor of medicine and later professor

of preventative medicine at Boston University School of Medicine. He has now returned to Chapel Hill as professor and chairman of the Department of Preventative Medicine in the expanding medical school. I refer to Dr. William L. Fleming, of Chapel Hill.

[Dr. William L. Fleming read his paper on "Chronic Illness and the Aging Population."]

Vice President Daughtridge: Thank you, Dr. Fleming. We enjoyed your presentation.

[President Hubbard resumed the Chair.]

President Hubbard: The next item has to do with the election of a trustee to the Hospitals Savings Association of North Carolina. The present term of Dr. Edwin Hedgpeth ends this year.

Dr. J. Street Brewer: Mr. President, in view of the many matters of importance regarding our new medical program that are coming before the Society and the Hospital Saving Association in the next year or so, I think it is important that we have men of experience on that Board. I therefore would like to nominate Dr. Edwin Hedgpeth for re-election to this Board.

Dr. Rachel Davis: I second the nomination.

President Hubbard: Are there further nominations? If not, all in favor of Dr. Hedgpeth, let it be known by saying "aye"; opposed, "no". Carried.

At this point, ladies and gentlemen, I will call to the platform Dr. McMillan, who will take up a matter of ratification of the revision of a section of the Constitution and By-Laws.

Dr. Roscoe D. McMillan: Mr. President, Members of the State Medical Society: As Chairman of your Committee on Revision of the Constitution and By-Laws, we have been informed by reliable counsel, that is, the attorney of the Medical Society, that we should make a very small revision in our Constitution which would eliminate a tax burden that we have been assessed. In other words, we would like to make this change to dispel any reason or justification for either the State or Federal organization reclassifying the Society from its former classification of scientific and educational and nonprofit organization to the classification of a trade organization. Therefore, to do that, it will be necessary to amend Article 2 of the Constitution relating to the purpose of the Society, to delete from it the phrase of the article which reads as follows: "And the guarding and fostering of their material interests," and insert as a first line in the article or statement of incorporation of the paragraph of the Laws of the State of North Carolina, 1799-1858, which incorporated the Medical Society of the State of North Carolina and which probably constituted a legal charter.

Next, to amend Article 4, Section 5, of the current By-Laws entitled "House of Delegates," for the purpose of deleting from the first and second lines of the same phrase, "as to the material interest of the profession," and to revise the paragraph to read as follows: "It shall consider and inform the public concerning matters of professional and scientific interests and matters affecting the practice of medicine particularly in the state, and shall use its influence to promote the enactment of legislation necessary to promote the enactment and enforcement of proper medical and public health laws."

Gentlemen, I would like to state further that this has been passed by the Executive Council, it has also been passed by the House of Delegates, but to be absolutely sure, I would like very much to have this body accept the following motion: I move that the Constitution and By-Laws be waived and that the proposed amendment to the Constitution and By-Laws be considered for immediate passage.

President Hubbard: Ladies and Gentlemen, you have heard the resolution.

Dr. W. A. Sams: I second the motion.

President Hubbard: It has been moved and seconded that this resolution be adopted. Any further discussion?

Dr. McMillan: What I am asking for now is that this body let us change the Constitution and By-Laws at this time, instead of laying over on the table for one year, as the attorney has informed me would be legal if this body would do so today.

[The question was called for.]

President Hubbard: All in favor, let it be known by saying "aye"; opposed, "no". The "ayes" have it.

Dr. McMillan: Now Mr. President, I want to make this motion: That the proposed amendment be adopted.

Dr. Sams: I second the motion.

President Hubbard: It has been moved and seconded that this amendment be adopted. All in favor let it be known by saying "aye"; opposed, "no". The "ayes" have it.

Ladies and gentlemen, I recently attended a conference of the National Rural Health Association in Denver, Colorado. This was a most inspiring and interesting meeting, as all of them have been, and I have attended most of them over the last seven years.

These National Rural Health Conferences are the most inspiring meetings you can imagine. You simply cannot grasp the import of them until you have attended one.

Now, the rural health movement was really initiated by the farm groups in our nation, the national farm groups, who became very much interested and concerned about health conditions in the rural areas, and accordingly they called in members of the A.M.A. for consultation. As a result of several conferences, the National Committee on Rural Health and Education was evolved. Later on the State Rural Health Conferences were organized.

The interest, as I have already said, was very great. They have a very active and positive program. I am anxious for you not to underestimate the very valuable co-operation of our powerful ally in the farm group. They are interested in several things that are of paramount interest to us, not only health service and medical service, but in national legislation. We have many mutual interests with the farm group and I don't think I could overstress that. I feel sure that many of you, and particularly the members of our Committee on Rural Health and Education, appreciate the importance of that statement.

At that meeting of the National Rural Health Conference there was present, and on the program, Mrs. Haven Smith, of Chappell, Nebraska. She made a wonderful address on the mutual relations and interests of the farm groups and the medical profession. Mrs. Smith is President of the American Country Life Association. She is a member of the Board of Directors of the Women of the American Farm Bureau Federation. She is a member of the Nebraska State Board of Education. It now gives me very great pleasure to present to you Mrs. Haven Smith. [Applause]

Mrs. Haven Smith: Thank you, Dr. Hubbard. Mr. Chairman, Members and Guests of the North Carolina Medical Society: It has been my pleasure to attend a number of medical meetings, but never have I attended a meeting when I have been so impressed with learning more of the great work that has been done in the field of rural health. For a long time I have known something of what you are doing here in North Carolina, but yesterday and this morning I have been learning more and more and I am filled with ever-increasing appreciation and admiration. I just wish all of my friends out in Nebraska knew what you folks are doing here in North Carolina.

I think I feel just a little bit like poor old Hans from Oslo, Norway, who was making his first visit to America. He wandered about the streets of New York City, gazing at the skyscrapers and other miracles in open-mouthed wonder. Finally he drifted into the lobby of an office building and saw his first elevator. It was early in the morning, there were few people around, only one person, in fact, a little wizened, wrinkled old lady. She stood waiting. Presently a door opened and she stepped into a little tiny room. The door closed and, swish, up went the room right through the building. Then, swish, right down again. The door opened and out stepped a glorious, fair-skinned, golden-haired young blonde.

Poor old Hans stared at her in amazement. "Oh," he cried, his voice quivering, "this wonderful America! I must rush home and get my Gretchen." [Laughter]

I feel very humble and proud to appear on a program sponsored by doctors. Ever since the greatest Physician of all physicians practiced the healing of the body along with the healing of the soul, the medical profession has been looked upon as among the noblest of professions. It wears this laurel most worthily. As a representative of farm people, I salute you and may you ever live up to your noble traditions.

My first recollection of doctors is of my doctor-uncle back in Iowa, going about with his little black bag, through mud, ice, sleet or snow, on foot, on horseback, with his old horse-drawn buggy. I think he would have crawled if necessary; perhaps he sometimes did.

Dear old Doc, the comforter, the counsellor, the friend of the entire community. I can still hear his weary footsteps climbing the bare stairs of my farm home at one, two, or three o'clock in the morning as he battled for me, for the life of a nine-year-old against an attack of double pneumonia. I can still hear his kind voice saying, "Now, Virginia, take this, just to please Uncle Doc." And I would swallow whatever he offered because Uncle Doc was the idol of my heart.

Doctors, God bless them! I think I might have married a doctor if one had asked me, but none ever did. Instead, I married a wheat rancher and have lived for 21 years on the wind-swept plains of Western Nebraska. Our whole country rises or falls on wheat. Together we watch the clouds. If the wheat is good, we all prosper together. If the wheat is hailed out, or blown out, or died out, we are all poor together.

A young man who was raised in Chappel, but who now lives in the East, recently wrote a book. He didn't forget us folks at home. Oh, no, he even put us in the book. This is what he says about us—us out in Western Nebraska:

"Wheat, wheat, the gosh-darned wheat!
From morning until night it's wheat.
The world don't exist for those folks
Outside the borders of their darned wheat fields.
Wheat ain't faring, wheat needs rain.
Wheat is washed out, blowed out, dried out.
I'm going to hold my wheat; I'm going to sell my wheat;
My wheat makes so-and-so; what's your wheat make?
How did so-and-so's wheat do?
I'm so sick of hearing about wheat,
The sight of bread makes me gag."

Well, maybe we should feel a bit proud, even at that. It isn't every community that can talk itself into a book.

Recently I read a little book called "Mainspring," and in that little book Henry Grady Weaver reminds us that for 6,000 years this planet has been inhabited by human beings not very much different

from you and me, their desire to live just as strong as ours, their physical strength just as great, many of them people of great intelligence, yet down through the ages most human beings have been hungry and millions and millions and millions of them have starved to death. The ancient Egyptians, Syrians and Greeks were intelligent people. They lived on some of the most fertile land in all this world, but they were never able to raise enough to feed themselves. It was an accepted practice for them to kill their babies because they could not feed them. The Roman Empire collapsed, in fact. The French were dying of hunger when Thomas Jefferson was President. Only 80 years ago, the Irish were starving and nobody thought very much about it because starvation in the Old World has always been the rule rather than the exception. It has only been in this last century that the people of Western Europe have been able to get enough food to keep them going, and even today famine kills multitudes in China and India and Africa. Even as late as the 1930's, thousands and thousands of people starved to death on the fertile farmlands of Soviet Russia.

Do you know that in the major portion of this world today, the standard greeting is not "Hello, how are you?" It is, "Have you eaten?" The big thing, the thing that stands between life and death—have you eaten?

We in America pray, "Give us this day our daily bread." I wonder how much that prayer really means to us, to us who have never lacked for daily bread, to us who do not know what hunger means. Yet, down through the ages, countless millions of people have been struggling to keep bare life in their wretched bodies, and here seemingly in one little spot in all the world we eat abundantly, we grow fat, we waste. We do not know what hunger means.

And why are we different? Why have people been dying of starvation for 6,000 years? Why is it that we here in America have never had a famine? Why did people live for 6,000 years in caves and floorless hovels without windows and chimneys, and here in America, in just a few generations, we take chairs and tables and carpets and running water and electric refrigerators and porcelain bathtubs all for granted?

Why did men and women and children struggle desperately from dawn until dark, barefoot, half naked, unwashed, unshaved, uncombed, with lousy hair and mangy skin, for 6,000 years, and here in one little spot in all the world we find an abundance of rayon underwear and nylon hose and electric razors and permanent waves and ice cream sodas and lip-stick?

Why is it that swiftly, in just about a century—we here in America have conquered the darkness of night, from the pine knot and the tallow candle to the incandescent lamp, the gas jet, the neon light, the light bulb, the fluorescent tube—why is it that here in America we have made such tremendous attacks on space, from the ox cart and the raft and the canoe to the steamboat, street car, subway, railway, automobile, bus, train, airplane?

Why? It isn't because of our natural resources. India and China and Russia have great natural resources. Oil oozed out of the earth in Baku four thousand years ago. No, natural resources alone can never make a nation great. And it isn't because we work harder than other peoples of this world. We don't work as hard as most of the people of the earth. Then, why are we different? Why is it that people all over this world are stretching out their hands to us in America for aid? Henry Weaver tells us it is just that we in America have made more use of our ability, more use of our initiative and imagination, more use of our resources than any other people on the face of the globe anywhere, anytime.

It is the result of freedom, of individual responsibility for ourselves, and for those we love, of individual reward according to our efforts and our abilities.

That is why, with only 6 per cent of the world's land and 7 per cent of the world's population, we in America have been feeding, in whole or in part, 43 per cent of the entire world. That is why, with our little 7 per cent of the world's population, we produce 30 per cent of all the world's goods and services. That is why, with our little 7 per cent of the world's population, we have 50 per cent of all the industrial equipment in this world and produce more than 50 per cent of all the world's industrial goods. That is why we in America have 92 per cent of all the bath tubs in the world, 84 per cent of all the automobiles, 78 per cent of all the telephones.

And yet some people, looking over our vast estate, solemnly shake their heads and declare that our methods in America have been wrong. They seek to abandon the way of our forefathers and substitute socialistic ideologies that have been rotting away the liberties of mankind throughout the whole world, they seek to implant in this fair land ideologies that have kept foreign peoples submerged down through the ages.

We know that we in America have the best doctors, the best medical care, the strongest, healthiest people of any major nation in the world. We know that we have led the world in medical advance, in medical science, and yet many people, right in our own government, seek to destroy this method that has produced these wondrous results.

We know that one of the strong talking points of those who seek to place America's health program under a government bureaucracy is the inadequate health protection of rural people. But that picture has been changing greatly. Farm groups and all interested agencies, under the leadership of the doctors of the nation, have joined in a unified effort to solve the rural health problem and we are getting the job done. And folks like you here in North Carolina are leading the way.

We know that we are competent to take care of ourselves, that we can solve our problems in the American way, that we do not want so-called adequate health protection handed to us from the tax dollar-studded pearls of a government bureaucracy. [Applause] And we are remembering that we are fighting for more than rural health. We are fighting for America. We are, in the words of your Dr. Henderson, fighting for "an unfettered, unshackled America, free to think, to create, to cross new frontiers."

The farmer's philosophy of individual responsibility coincides with the philosophy again and again brought out at medical meetings. The farmer has developed an awareness of his health problems. He is using united effort through his organizations toward their solution. He understands, as you folks know, the principles of cooperation, and he is as resourceful as he was more than a century ago when, with his rifle by his side, he penetrated the wilderness, cleared land for his fields, and built a home for his children. He wants all that is good for the America he did so much to build, and he is willing to work for it.

I am taking these few minutes to emphasize rural health because of its very great importance, and also because it is the only phase of the great medical field on which I am informed and which I feel qualified to speak upon.

We farmers owe a debt of gratitude to the medical profession for the great forward steps that you have taken in building a health program for rural America. As I have attended medical meetings, I have sometimes been appalled, and intimidated by

the complexity of the rural health program, by its many-sidedness. It involves so many things: Balanced diet, soil and its relation to human nutrition, animal diseases affecting human health, preventive medicine, pestilence control, pure milk and water supply, safety, sanitation, dietary deficiency diseases, rural housing, "well baby" clinics, laboratory service, research—all these and others, in addition to available hospital and medical care, and I might add the money to pay for them, a vital factor with rural people. And this brings in the very important field of voluntary prepayment health insurance plans.

If you folks sometimes doubt that your great efforts in all of these fields are really benefitting rural people, if you doubt that your efforts are trickling back to the rural communities to take root and bear fruit, please listen to this little story. It is true in every detail.

Just a few weeks ago I was invited by a dear friend and her children to spend the day with them. The mother had a broken right arm and the five children, aged 6 to 14, had taken over. When I arrived early, as I had been asked to do, the children were planning the meal. Such interest and concentration! The wise mother took no part whatever. I heard comments about proteins, fruits and vegetables, and even color. Later we sat down to a well-cooked, perfectly balanced meal, a meal that would have done credit to anyone, and a meal prepared by five children.

During the day I was amazed at the health consciousness of those five active youngsters. Bob, the oldest, showed me the stepladder he had reinforced for safety. He showed me the hand rail on the back porch that had been fixed so that no one else would slip and break a bone as Mother had done. But it was little Mary, the six-year-old, who showed me the medicine chest, well out of the reach of tiny fingers, with pins in the corks of dangerous medicines, so, she said, nobody can make a mistake. She showed me the new home plumbing system, with the disposal unit a safe distance from the water supply. Of course, their cows had been tuberculin tested, but Dad had said with so many children drinking so much milk, he was going to have to figure a way to get pasteurized milk for them.

They explained their system of fly and rodent control. "Not even old Tabby can hide a mouse here anymore."

They took me to the barn to see the older children's 4-H calves and Timmie's rabbit hutch and Mary's pet turtle.

They showed me the bags of fertilizer stored ready for use, and I found those children knew something about soil and its relation to human nutrition. Timmie explained to me that in some parts of this country people are not as healthy as they should be because the soil doesn't have the proper things in it. "Dad works all the time," he continued, "to keep our soil good."

This family had health insurance and the children knew all about it. But their really great story was this: The community was getting a doctor, a comfortable home was available for him, an office building had been secured, cleaned, painted and furnished by the community and all local organizations were now busy raising money for equipment.

Mary added, "We must keep the doctor happy so he will want to stay with us." Truly, from the mouths of babes comes great wisdom.

Everybody was delighted about the doctor. Now they wouldn't have to go 36 miles to a doctor as Mother had had to do to get her arm set.

Later I found that this community had once had a very good doctor, but the people there had been

so uncooperative, so woefully ignorant of their responsibility to a doctor in this age of progress that the poor man had finally folded his tent and silently crept away to greener pastures, as I happen to know. And the change of attitude on the part of rural people is, I think, the brightest aspect of the entire situation.

I heard Dr. Hubbard say in Denver that as a man thinks, so is he. That is true, and as attitudes change, people eagerly reach out for every available help.

But back to my children. Where had they gotten this health consciousness? From the school, from the Scouts, from the 4-H, from visiting with Mother and Dad over the dinner table, and I want to say that when a family of children down to a six-year-old understands about balanced diet, pure milk and water supply, preventive medicine, pestilence control, safety, sanitation, the relation of soil to human health and, more especially, about a community's responsibility to its doctors, and when that typical family is multiplied by thousands of rural families throughout this nation, the rural health picture looks very bright indeed.

One of you doctors said, "Good corn grows from the roots up, not from the tassels down," as many of us have had to do in our health consciousness; and when we see desirable attitudes and health consciousness in the children of America, the health problem ceases to be intimidating, complex, and many-sided. These youngsters, when they grow into adults, will not find it so.

But we cannot rest on our accomplishments. There is still much land to be possessed. If I wished to get control of a nation, I would seek first control of two things: Its food and its health. The battle to prevent the socialization of medicine and agriculture has been hard and sometimes bitter. It is not ended. In the battle to prevent the socialization of American medicine, organized farmers, as I know them, have stood staunchly beside the doctors. But it isn't enough to fight socialization on just one front. Socialization must be fought clear across the board, on all fronts, wherever it rears its ugly head.

In the battle to prevent the socialization of agriculture, farmers have been on the firing line. You doctors have stood loyally beside the farmers. Very, very few doctors are like the young doctor who happened to sit by me at a banquet in a Nebraska city. He remarked with some irritation, "I just can't see why you farmers kick about the Brannan Plan. Why can't the Government pay part of the nation's food bill and give us city fellows a break? What do you farmers care as long as you get your money?"

Almost immediately he arose to give a brilliant address denouncing the evils of socialized medicine. With only a little thought, he would have realized that socialization in one field spreads like wildfire to other fields, and I know that very, very few doctors are so misinformed about agricultural matters as was this young doctor. And of course I am fully aware that a few farmers are misinformed, too. But the vast majority of doctors, like the vast majority of farmers, stand staunchly opposed to all forms of state socialism. In fact, the farm organizations, standing with the medical profession, form one of the strongest bulwarks of democracy in America today. [Applause] As Dr. Hubbard said last night, in the hearts of medical people and of rural people is America's first and strongest single bulwark against socialism.

In medical meetings, I have been impressed by the philosophy of disseminating information—information designed to encourage self-help and individual responsibility; by the philosophy of faith—faith that we can do this job ourselves; and by the

philosophy of cooperation. Such themes as, "Why wait, let's do it ourselves," "Help yourself to health," "Let's do something about it," are very refreshing in America today where so many people have developed the philosophy, "Let the Government do it."

In its broader aspect of the health program, out in front where the battle is being waged to hold the line of democracy, to preserve individual initiative, responsibility and freedom, the philosophy of disseminating information, of holding fast to faith, and of cooperating with our fellow men, must continue to operate unabatedly.

In the final analysis, the fate of this nation depends upon its people and the fate of the nation must not be determined by an uninformed or a misinformed citizenry. In a world of totalitarian concepts—and that is what we live in, folks, a world of totalitarian concepts—we here in America are still a free people. We still have free choice. The question is, how will this 20th Century be tagged fifty years from now? It is up to us. Senator Margaret Chase Smith says, "The future lies with us, the people." Our Constitution begins with these words: "We, the people." When Thomas Jefferson was asked if our Republic would endure, he answered, "It will endure just as long as the people want it to endure."

George Washington, in answer to the same question, said, "That depends upon the people."

After the signing of the Declaration of Independence, a little old lady anxiously waiting outside approached Benjamin Franklin and said, "Dr. Franklin, what do we have now, a monarchy or a republic?"

"A republic," he answered, "if the people will keep it."

A nation's fate depends upon her people. A government will never lead a people where they are not willing to go—willing through apathy, willing through ignorance, or willing because they believe the course to be right. Charles Evans Hughes once said, with prophetic vision, "The peril of the nation lies not in any foreign foe. We, the people, are its power, its peril and its hope." And meetings like this, with their philosophy of disseminating information, are contributing to the power and the hope of the people.

Second, we must hold fast to the philosophy of faith so often brought out in this conference—faith in ourselves, faith in our fellow men, faith in our country, faith in our God—not the faith of the fellow who goes around with a silly grin on his face saying, "Everything is going to be all right, don't worry." We know everything isn't going to be all right unless we make it right. We know we are going to have some jolts, but if we have the right kind of faith, we can absorb those jolts and build on them.

We only need to look to the past to have faith in the future. We just passed the mid-point of the 20th Century. In these last fifty years, we have seen the gasoline engine give mobility to the whole human race. We have seen a great cobweb of highways criss-cross this entire continent. Fifty years ago air was something you and I breathed. Today we ride on it to the ends of the earth in 60 hours, and travel faster than sound.

We have harnessed the ether waves and made them carry our voices over land and ocean.

And in the field of medicine, the strides have been almost unbelievable, the death rate cut almost in half; we have all but obliterated the incidence of typhoid, diphtheria, yellow fever, and many other killers; approved hospitals have been increased from 1,000 to more than 6,000; 70 million, nearly half of our people, are enrolled in voluntary prepayment health insurance plans; and in the field of education,

we have gone on apace. College attendance has risen from 170,000 to almost two million. Fifty years ago, a Patent Office commissioner seriously proposed closing the United States Patent Office because, he said, "everything has already been patented."

A Philadelphia man objected to Benjamin Franklin marrying his daughter because, he said, "there are already three printers in these United States."

And so we must hold fast to faith. The kind of faith we need today is faith that we can write our own ticket for the future, faith that we can work together and make America what we want her to be.

And last, we must continue to work in the spirit of friendly co-operation so evident at this meeting and at all medical meetings. If we are to save America, we must join hands and ranks with the millions of liberty-loving people dedicated to preserving the freedom that has made America the glory of the world and we must do it now before we have reached the point of no return. We must pool our energies, our strength and our abilities to preserve the crumbling citadel of democracy erected for us by our forefathers, a citadel built of the rocks of integrity, thrift, courage, self-reliance and individual responsibility and freedom, cemented with the rocks of mortality and faith in God.

The Bible tells of Nehemiah. He said, "Oh King, I want to go back to my home town," and the king said, "What for?" And Nehemiah said, "Because the wall has fallen and it is in a rubble and looks unsightly."

So he went back and they built the wall. The Bible tells the whole story in just three lines of scripture. It says, "So built they the wall, for the people had the mind to work."

Less than 1/2 of 1 per cent of the 200 billion people that have lived on this earth since Christ was born have lived under conditions of freedom such as you and I have known here in America. This freedom isn't something that is just automatically ours. Just one generation—just one—that does not realize its value, that does not work to preserve it, and it can be gone forever.

Pitcairn:

I want to leave with you the words of Robert "Freedom is never permanently secured. By each successive generation it must be defended anew. Always its price remains eternal vigilance. Always its preservation demands faith and valor and sacrifice. Freedom is a peculiar trust of our nation. Here free government was established. Here, it must be preserved. But, 'runs the solemn assurance,' in our battle to keep men free, we do not fight alone. Washington is with us, and Jefferson and Lincoln. John Paul Jones and Anthony Wayne and Davy Crockett still uphold our arms. The men who fell at Lexington and Gettysburg and Chateau Thierry are on our side. All who fought for freedom, all who knew the great devotion, are still comrades, and exemplars. With such accomplishment, we cannot hesitate; with such a leadership we cannot fail. Under such responsibility, we dare not falter. Hold high the light of liberty. This is America's message to all her citizens. It is her message to you:

"For what avail the plow or sail
Or land or life
If freedom fail."

President Hubbard: Thank you, Mrs. Smith, so much, for this very inspiring and comforting message you have brought to us.

[Vice President Daughtridge resumed the Chair.]

Vice President Daughtridge: I am going to turn the program over to Dr. William Selby, who will take charge of the next part of the program.

Dr. William Selby: Mr. President, Members of the North Carolina Society, and Guests: It is my privilege and pleasure to bring to you the winner of the

1952 High School Essay Contest, which is sponsored by the Public Relations Committee of the Medical Society of the State of North Carolina.

Miss Maude Bess Pow was adjudged the winner of this contest by competent judges. Miss Pow is of Cramerton, North Carolina, and is the daughter of Mr. and Mrs. John O. Pow.

Miss Pow has won a \$600 scholarship which is good at any college or university of her choice, which meets the standards of the Southern Association of Colleges and Secondary Schools.

She competed with the group of high school essayists throughout the entire state and we hope that with the scholarship will go many, many things that will help her down life's highway.

At this time Miss Maude Bess Pow will present her essay, "Why the Private Practice of Medicine Furnishes this Country with the Finest Medical Care."

[Miss Maude Bess Pow read her winning essay.]

Dr. Selby: On behalf of the Medical Society, I want to present to you the award and we take this opportunity to convey our sincere appreciation and wish you in life every measure of success.

Miss Maude Bess Pow: Thank you. I would like to render my thanks to the Medical Society of North Carolina for the honors that have been given to me.

President Hubbard: I will declare a recess of the General Session for a Conjoint Session with the State Board of Health. Dr. Grady Dixon will take the Chair.

CONJOINT SESSION

Wednesday, May 7, 1952

The Conjoint Session of the North Carolina State Board of Health and the Medical Society of the State of North Carolina was called to order at twelve o'clock noon by Dr. G. Grady Dixon, President of the North Carolina State Board of Health.

[At this point the Conjoint Session proceeded with Dr. Dixon presiding. The members of the State Board of Health were presented individually.]

It is my pleasure at this time to present to you Dr. Roy Norton, the State Health Officer, for his annual report to the Conjoint Session of the State Medical Society and the State Board of Health. Dr. Norton. [Applause]

Dr. John W. Roy Norton: President of the Board Dr. Dixon and President of the Society Dr. Hubbard, Members of the Society and the Auxiliary:

I won't try to make a detailed report here.

[At this point Dr. Norton read in part a manuscript containing his annual report of the activities of the State Board of Health.]

[It was regularly moved, seconded and carried that the report of the Public Health Officer be accepted.]

Chairman Dixon: I will now declare the Conjoint Session adjourned.

The Second General Session reconvened, Dr. Arthur L. Daughtridge, Second Vice President, presiding.

Vice President Daughtridge: I now reconvene the Second General Session.

Some of the doctors have not registered. The Committee on Arrangements is very desirous of having every doctor register, because it helps them in making their arrangements next year.

Now comes the time on the program for which all of you are waiting, and I am going to turn the program over to Dr. Lenox Baker who will take charge at this time.

[Following the awarding of Golf Prizes and Exhibit Prizes, the meeting adjourned at one-thirty o'clock.]

THIRD GENERAL SESSION

Wednesday Afternoon, May 7, 1952

The Third General Session was called to order at five-fifteen o'clock by the President, Dr. Frederic C. Hubbard.

President Hubbard: Ladies and gentlemen, if you will come to order now, we will begin the Third General Session of the 98th Annual Session of the Medical Society of the State of North Carolina.

I am going to ask Dr. W. P. Starling and Dr. D. E. Best to accompany Dr. Street Brewer to the rostrum. [Applause]

Dr. Brewer, I know of no finer act in my official administration nor that could give me more pleasure than inducting you into this office, the office of President of the North Carolina Medical Society. I know of no one who is more eminently fitted to assume this position. I feel very confident that, in passing the gavel over to you, in passing the reins of the Society into your hands, the best interests of the Society will always be served during your term of office.

Will you raise your right hand and follow me as I repeat this Oath of Office.

[Dr. Brewer repeated the Oath of Office.]

[The newly-installed President, Dr. J. Street Brewer, took the Chair.]

President Brewer: Dr. Hubbard, Fellow Members of the Medical Society of the State of North Carolina, Ladies and Gentlemen: I am not able to express to you in words the emotions that move within me as I accept the Presidency of the Medical Society of the State of North Carolina. I am proud, quite naturally, that this, the highest honor you can give in the Medical Society of the State of North Carolina, has come to me, but it is a pride which is tempered with the knowledge of the responsibilities of this high office. But in all things I shall try to do my best and knowing the doctors of North Carolina and the co-operation that they give, I am not afraid, because I know that we shall go forward and do well for the people of this state.

I appreciate this honor and I dedicate myself to the Medical Society of the State of North Carolina and the people of this state.

I pray God to give me wisdom to conduct the office and the affairs of the Society with judgment and the exercise of deep prudence. Knowing that He is with me and that my fellow practitioners are with me, we cannot fail and we will go forward to greater things. I thank you. [Applause]

It is now my duty to install the President-Elect of the Medical Society of the State of North Carolina, Dr. Joseph A. Elliott, of Charlotte. Dr. McMillan,

will you conduct Dr. Elliott to the rostrum? [Applause]

Dr. Elliott, the House of Delegates of the Medical Society of the State of North Carolina have designated you as President-Elect, and I am proud that my first duty as President is to install you, my friend, as President-Elect. I welcome you into the official family of the Society. [Applause]

Dr. Joseph A. Elliott: Mr. President, Members of the Society, Ladies and Gentlemen: I wish to express to you my deep appreciation of the high honor which you have bestowed upon me. Having served on the Executive Committee for a number of years, I have some conception of the duties which I must assume. I bespeak your wholehearted cooperation. I am sure that I shall need it, and I pledge to you my best efforts in carrying out the duties of this office. Thank you. [Applause]

President Brewer: The next item is the installation of the First Vice President. Dr. Hedgpeth, will you conduct Dr. George Paschal to the rostrum. [Applause]

Dr. Paschal, it is now my duty and my pleasure to install you as the First Vice President of the Medical Society of the State of North Carolina. I congratulate you and I also congratulate the Medical Society.

Dr. George W. Paschal: Thank you, sir. I am indeed grateful for the privilege of this office. I am aware of its responsibilities and I pledge our new President every co-operation in the functions of his office. I only ask that the Board take good care of him. Thank you. [Applause]

President Brewer: Next is the installation of the Second Vice President, who is Dr. John Bender, of Winston-Salem. Dr. Bender told me at lunch that he was afraid he would not be able to be here, and in his absence I will officially declare him the Second Vice President of the Medical Society of the State of North Carolina.

At this time I would like to recognize Dr. Millard Hill of Raleigh. [Applause]

Dr. Hill's term of office has not expired and he is the Secretary of the Medical Society of North Carolina and I present him to you.

Is there any further business to come before this Society? If there is nothing further, I therefore declare this session of the Medical Society of the State of North Carolina adjourned sine die. [Applause]

[The 98th Annual Session of the Medical Society of the State of North Carolina adjourned at five-thirty o'clock.]

Sine die.

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NEW FRONTIERS OF AMERICAN MEDICINE

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ST. LOUIS

Not so many weeks ago my wife, our 15 year old son Calvin, who expects to be a physician, and I were visiting a small rural hospital in one of the countries of Southeast Asia, about 12,000 miles from where we are sitting today. The name of the country and the exact location are immaterial because, I suspect, the situation could be duplicated in several countries and in many hospitals.

Calvin and I were invited to go through the wards, in which there were about 15 patients. There was one patient whom I shall never forget. In the corner of the men's ward was a perfectly developed, robust, clean-cut young man, spread-eagled on a bed consisting of a solid wood base without springs or mattress. There were no sheets or pillows, and a thin rattan mat was the only item of what we would call linen. He was sweating profusely and had an anxious expression on his face. The heart rate was about 120, as counted from the visible pounding impulse on the chest wall. Respirations were about 30 per minute, and short and labored. I could not understand him and he could not understand me, but his appealing eyes spoke a universal language—"Can you do something for me? I am desperately ill. I want to live." I glanced at the chart held by our host, and saw a temperature plot with a straight line for two weeks 103 F. I started to reach for the chart, but the physician read my thoughts and said, "No, he is not receiving Chloromycetin. We do not have any."

We left the hospital a short time later and I shall probably never know the end of the story. But, if I know any medicine, the outlook was poor, and I suspect that the pa-

tient died within the next few days of hemorrhage or perforation. Also, if I have even the faintest idea of the techniques of the idealistic cold war we are waging today, this man's wife had a visitor in her primitive one-room thatched home a few days later. The visitor probably spoke along these lines: "I am terribly sorry your husband and the father of your children has died. I have come to help you. You probably do not know it, but there is a drug that would have saved his life. Under the government of our country as it is today, friendly to those warmongers, Britain and the United States, there was no consideration for your husband's life. This government did not make available a life-saving drug. If you will support our group and overthrow the government, we will see to it that this drug is available and that people do not die. Are you with us?"

If you were in the place of this young widow, what would be your answer to this question "Are you with us?" It is difficult to exchange idealism for the life of a dear one.

Solving the Problems of a Sick World

To my mind, in this simple true story with the assumed addendum, there are all the elements of the problem which we of the free world face today in Asia.

First, there is proof that every aspect of modern life is inexorably tied to every other aspect. Second, there can be no isolationism in our attack on disease. And, third, medicine is closely allied to world politics and must take its place as a social science in helping to solve the problems of a sick world.

It is this opportunity which I have termed "New Frontiers for American Medicine."

For the century or more after modern medicine emerged from the chaos of mysticism, leadership was held in Europe successively by France, England, and Germany. Some of

Commencement address delivered before the graduating class of Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina, June 15, 1952.

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you in this room studied there and received some stimulation and spark for your own careers. I freely acknowledge my debt to Vienna and her medical great for the year I spent there in 1931-1932. After the First World War one rein of leadership was dropped, and after the Second World War the second rein slipped from their grasp. If we act now and act decisively, America can assume world leadership, not so much for the honor of being the leader, but for the honor of having a part in making the world a better place in which to live.

The interrelationships of modern life

Just 14 months ago, the Washington University School of Medicine signed a contract with the Mutual Security Agency of the United States government to assist in one small segment of this new frontier—medical education in Thailand (Siam). Since then my own education in the intricacies of modern life has been a liberal one.

If someone had told me two years ago that the dean's office of an American medical school would be vitally concerned with a revolution in far-off Thailand, I would have told him he was crazy. But in June and November of 1951, and in March of 1952, the long distance lines between St. Louis and several government agencies were humming with exchanges of information and questions. Revolutions were reported in Thailand, we were most interested in the safety of our faculty, and everyone was interested in probable causes and possible effects.

Again, if someone had told me two years ago that the plans of the dean's office of the Washington University School of Medicine in May and June, 1952, would be upset because of a strike of American petroleum workers and a consequent shortage of aviation gasoline, I would have thought the informant was a little touched in the head. But, it has come to pass that a medical school and aviation gasoline are related. We had a group of faculty members ready to go to Thailand for the opening of school in June and replace those who had been there a year. But, they could not leave on schedule, because all the great airlines of the world — Pan American, B. O. A. C. and K. L. M.—were short of gasoline and had cancelled half the flights over the Atlantic and through Europe and Asia. Although the strike is settled, the airlines will not be back on full schedule before June 15.

Or again, if someone had told me two years ago that my own life and plans would be influenced by a vote in the parliament of the Republic of Indonesia, I would have questioned his logic. However, this is exactly what happened in February and March of this year. When the professor of pathology at the medical school in Djakarta, Indonesia, learned that I was to be in Southeast Asia, he invited us to visit him. The visit was arranged, but in the meantime the parliament of his country voted to reject all assistance from the Mutual Security Agency. Inasmuch as I was traveling under orders of the M. S. A., there was doubt that I should go to Djakarta. The difficulty was resolved, however, and we had a most pleasant visit with Dr. Sutomo and his colleagues at the medical school.

Need I cite other examples to prove the point that all aspects of modern life are intimately interrelated? We cannot distinguish between what is national and what is international, or what is a medical problem and what is a social problem, what is an economic problem or even what is a political problem. Revolutions in a far off country, the supply of aviation gasoline, and a vote in a parliament in the East Indies (half way around the world) have become of concern to medicine, to an American medical school, and to several American physicians in the last year, among others.

Helping others help themselves

Let us return to the patient with typhoid fever on the wards of the small hospital in Southeast Asia. You may have drawn the inference that I think it is the responsibility of the United States to supply enough Chloromycetin to cure every patient with typhoid in the world. In fact, I had hoped you would accuse me of that thought so that I might deny it. What I really believe is that we should so help other countries as to make it possible for them to manufacture their own Chloromycetin.

It is just this difference between doing the job for them and helping them to do it themselves that will make or break our entire foreign policy. To do the job for other nations is nothing more than a continuation of the hated colonial imperialism. To help other nations become self-sufficient is the true spirit of the commonwealth of free nations, which is our objective.

The Disease of Communism

The commonwealth of free nations is today waging a campaign against a disease which threatens to become pandemic and engulf a large segment of mankind. In some countries this disease is already in epidemic proportions, while in others it is only endemic or sporadic in nature. This disease is not one of the usual sort such as cholera, plague, or yellow fever, affecting the body biologic, but is a disease of society affecting the body politic. The disease is known as communism.

When the germs of the disease enter a country, there is a certain morbidity—that is, a variable number of people succumb to the doctrines and promises of a new way of life. In this favorable host, the germs multiply and are passed on to other persons. As with physical disease, there is a true mortality—that is, a certain percentage of those afflicted die, but in contrast to the usual situation, the first to die are those who are most resistant rather than those who are most susceptible. Later, as the germs sap the strength of the unfortunates, the death rate rises in the susceptible population under the influence of slave labor and regimentation. From time to time there are flare-ups in mortality called purges, just as physical disease may lie smoldering in a population and suddenly explode in an epidemic.

Thus in the fundamental approach there are no basic differences in disease of the body biologic and disease of the body politic. Each has a mechanism for spreading in a population. Each has a varying effect on the involved population. In medical terminology, each has etiologic factors, an epidemiologic pattern, a pathogenesis, and a predictable morbidity and mortality.

If physical disease and social disease are analagous, and I believe they are, we should be able to learn something of how to handle a disease of society from a review of how the great epidemic and pandemic diseases of the past have been brought under control.

The Conquest of Plague

When the world was very large, figuratively speaking, the worldwide sweep or the intercontinental spread of a disease was unknown, and therefore was no problem. Each community and each nation came to live in a sort of symbiosis with its diseases. In many of them, some degree of racial immunity or

resistance was established. Completely isolated communities were relatively free of many of the diseases which we fear today.

With the beginning of world trade and world exploration by the countries of Western Europe, the diseases of one community were carried to other communities. Thus when the Venetians established trade with the Levant, the ships and the sailors brought back, among other things, bubonic plague. Here was a new disease in a population never before exposed. The Venetians reacted as most human beings respond to a disagreeable event or fact: they built a wall around themselves. In 1127 every traveler from the Levant was required by city regulation to remain in the house of St. Lazarus for 40 days before being admitted to the city. But this was no more successful then than it has been since. The causes of disease do not respect international borders and will pass through, around, under, or over any physical barrier. Plague repeatedly visited Venice and Europe, and finally from 1346 to 1355 the disease swept across Europe as the Black Death, decimating whole cities and states.

For eight centuries—or, to be exact, from 1127 to 1938—the best brains of the world formulated regulations to keep plague out of Western Europe and North America. In April of the latter year — 1938 — the last known case of plague on board a ship occurred: contracted by a sailor on the S. S. Ville de Tamative in the harbor of Beirut. Even the massive increase of tonnage carried during World War II did not mar the record.

How was this accomplished? Not by building a wall around Europe and America; not by employing purely defensive measures; not by ignoring things that were unpleasant; but by carefully studying the factors responsible for and the mechanism of the spread of plague; and by international cooperation.

During the centuries many clues as to the nature of plague came to the attention of observing men. The Bible speaks of the association of plague and mice among the Canaanites. At the beginning of the Christian era Poseidonius recorded: "One can see an approaching plague by paying attention to the ill conditions of the seasons, the mode of living less conducive to health, and to the death of animals that precede its invasion." In the

eighteenth century a Chinese poet wrote:

Dead rats in the east,
Dead rats in the west!
Few days following the death of the rats,
Men pass away like failing walls!

The break came in the first decade of the twentieth century when the Commission of the Investigation of Plague in India reported that plague is primarily a disease of rats, and that it is transmitted from rat to man, and from man to man by insects, the rat flea, and the body louse respectively. Here were some facts with which we could begin to take the offensive. If rats could be kept off ships, a link in the chain of spread would be broken. First, protective guards on the haw-sers were used to keep rats from entering or leaving a docked vessel, and then periodic fumigation of entire ships killed those aboard. Without the diseased rat and the rat flea as a passenger, plague could no longer be spread by the sea lanes and countries free of the disease would remain free. Some nations did not cooperate, but that did not prevent those who did from sweeping plague from the high seas and freeing most countries from its grip.

The Transoceanic Jump of a Mosquito

A more recent event will serve to point up even better the technique, first, of careful study and, second, of an offensive campaign. In the late 1930's one or more gambial mosquitoes, native of Africa, secreted themselves on an airplane, and rode across the South Atlantic to Brazil. To the native in Africa or Brazil, and to most people, a mosquito is a mosquito. But to the scientist and public health official there are many kinds of mosquitoes. Some carry disease and some do not. Some bite men rarely, and others frequently. Some live near human habitation, and others live in the forests or swamps. The new mosquito — the gambial mosquito — had every characteristic it should not have: it carried malaria, it lived near human dwellings, and, most important, its greatest delight in life came from biting human beings.

By the most diligent work during the preceding decade malaria in the cities of Brazil, spread by the anopheline mosquito, had been brought under control. Here was a totally new problem of disease. The measures which had been effective against the anopheline mosquito were ineffective against the gambial mosquito. A whole continent, and perhaps two continents, were threatened by an invasion as serious as though an army had

landed on the shores of the Western Hemisphere. In fact, in two years in a small part of Northeastern Brazil there were 300,000 cases of malaria and 16,000 deaths.

By the most diligent work between 1939 and 1941, the Brazilian government, with advice and help of the Rockefeller Foundation, stamped out the gambial mosquito in Brazil.

However, if it had happened once, it could happen again; a mosquito could cross in an airplane. And just then, as if to compound the complexities of the problem, the Air Transport Command of the United States Army started flying planes across the South Pacific in about the same volume as buses passing on the streets of a city. Did the Brazilian government build a wall around the country or forbid planes to land? No! First, they started fumigating the planes on arrival and at the same time trained personnel for Pan American Airways and the Army, so that the fumigation could be done in Africa. Further, they sent some of their own trained personnel to Africa. Finally, the Armed Forces, by proper sanitary measures at the African fields, cut down the insect population about the fields.

In other words, again the job was accomplished not by isolationism but by international cooperation; and by first attacking the agent of disease at the point of departure on another continent, and, second, making it impossible for the agent to survive at the point of departure.

The Technique of Conquest of a Disease

In each of the two examples cited—plague and malaria—and in many others, such as yellow fever, hookworm, and cholera which there is not time to discuss, the conquest has been accomplished in two stages; first, by making a careful study of all conditions under which the disease occurred and of the mechanism of transmission; and second, by correcting the unfavorable conditions which favor disease and breaking the cycle of transmission.

It is my sincere belief that these techniques are as applicable to the conquest of disease of the body politic as they have been of diseases of the body biologic. Research into the fundamental causes and processes of disturbances in society is just as sound as is research into the causes and processes of disturbances in the heart, or liver, or kidneys.

I do not propose to know all the answers to

the question of why people turn to communism, but I believe recent experiences have pointed out some answers. In other words, we are in a position to begin the first stage—a careful study of all conditions under which the disease occurs and of the mechanisms of transmission.

One type of communism is so evident that the people of Western Europe have a special name for it—"stomach communism." Any individual or community of individuals who do not have enough food for themselves or their children will believe any promises made by a propagandist, no matter how fantastic or impossible they may be. After the close of World War II the shortage of food in continental Europe was real, and many people turned to communism. After all, when a human being is in the depths of depression from any cause, he will believe that nothing else could be worse and that perhaps another way of life will be better.

Our government, through General George Marshall, saw the law of cause and effect at work in "stomach communism" and inaugurated the Economic Cooperation Administration to raise the standard of living in Western Europe. The result has been most promising. In each election since the Marshall Plan was initiated, the percentage of those voting for communism has decreased in Italy, France, and Belgium. Here is experimental proof of a sociologic law: that the degree of communistic support is in inverse ratio to the standard of living and economic well-being of a populace.

A second brand of communism is not so well recognized, but I believe it is equally valid. It is "illness communism." If we arrange the mortality rates—that is, deaths per year per 100,000 living population—in decreasing sequence, most of the countries afflicted or threatened by this disease of society—communism—are in the top half, and most countries relatively free of the disease are in the bottom half. To my mind, this relation is not an accident of statistics.

What group of mothers who knew that 7 out of 10 babies born to them would die in infancy and childhood would not listen to promises of a better way of life? What group of men whose earning power was decreased to half or less because of chronic malaria, kala-azar, or schistosomiasis would not welcome an opportunity to live better, promised by a silver-tongued orator? What father and

mother would sit idly by and watch their children die of starvation without longing for some way to prevent this? The communistic form of government is less able to prevent starvation than the democratic form of government, as proved by mortality rates, but the sinking man does not stop to examine the logic of a promise made to him.

A Sample of Health in the Orient

We in the United States with our high standard of living and high quality of public health and medical care are likely to minimize the situation in other parts of the world. Let me draw a composite picture of a hypothetical country of the same size as the United States—that is, with a population of 150,000 from a medical standpoint.

Would we be happy, could we support our industrial economy, could we maintain our standard of living if there were 42,000,000 victims of chronic malaria instead of the 5,000 we do have; if there were 840,000 deaths from malaria a year instead of a few; if the life expectancy at birth were 27 years instead of more than 60 years; if there were 11,000,000 persons with active pulmonary tuberculosis instead of an estimated 1,125,000 (0.75 per cent of the population); if there were 1,200,000 blind individuals instead of an estimated 250,000; if the over-all annual death rate were about 20 per 1,000 living persons rather than 10; if there were 1 physician per 45,000 population instead of 1 per 750; and if there were 1 hospital bed per 16,000 people instead of 1 per 125?

These figures are not hypothetical; they are the actual statistics for India and China.

To Practice Our Way of Life

Many other types of communism embracing the fundamental causes of a turn to communism might be given, but these two—stomach communism and illness communism—will suffice at the moment to illustrate my general thesis: by actual fact the western way of life provides better food and better health than the communistic way of life. My second thesis is that it is not enough that we tell people about this way of life but that we must go to them and help them to learn to live our way.

Let us not forget the lessons learned in the conquest of pandemic disease. Every attempt to exclude a disease from our country, or any country which depended on isolationism and a wall around its territory has utterly failed.

Success has come only when we have gone out into the world and helped those who wished to be helped to stop or eliminate the disease there. Plague was not conquered by a quarantine at our shores, but by eliminating the disease from the ships sailing the seas. The threat of yellow fever in our port cities was not met by quarantine, but by helping the nations of South America to wipe out the disease in those countries.

One hallmark of the intelligent, logical man is the ability to learn from the past, to learn from his mistakes, and to apply his proven knowledge to new problems.

In medicine, the past experience in the control of disease of the body biologic is clear. We must apply this knowledge in combatting a new disease of the body politic which threatens the heritage of the Western World from the time of ancient republican Greece.

The Secondary Problem

Many have said that a problem of this type will create more problems than it will solve. First and foremost, a lower mortality rate will create a surplus population which cannot be supported on the land, and more people will starve to death. Again, I do not propose to know all the answers to this question, but I do know that the density of population in Holland is 686 per square mile and that the Dutch people live very well, while the present density of population in China is 104 per square mile, or about one-seventh of that in Holland. The answer is clearly not one of total population but of greater utilization of available resources.

I suspect that if our economy had been fully planned in 1890 or 1900, there would have been those who would have discouraged medical research to prolong life because we could not feed and support the larger population. But, we did both; we prolonged life and fed the population by simultaneous research in agriculture and economy.

Medical Statesmanship and New Frontiers

There are the new frontiers for American medicine. There are the opportunities for American medicine and American physicians to become leaders in the field of medical statesmanship. Political statesmanship and armed might alone have not proven equal to the task—one of the most important tasks we have today—namely, to win the people of Southeast Asia into the commonwealth of

free nations. Indeed, the peace of the world could well depend upon it. Southeast Asia (that is, Indochina, Thailand, Burma, and Malaya) in other hands, as it was in 1942, opens the great plains of India and Pakistan, the islands of Indonesia and the Philippines, and the continent of Australia to conquest.

Aside from its strategic importance in a military sense, Southeast Asia is a most important link in the economy of Asia and the world. The rice exported by Burma, Thailand, and Indochina is needed for minimal nutrition in the Philippines, Malaya, Indonesia, India and Ceylon. From this area come 60 per cent of the world's supply of tin, 95 per cent of its natural rubber, and 90 per cent of its copra. It contains the only important petroleum reserves between the Persian Gulf and California.

Medical statesmanship is not the only additional weapon at our disposal but it is a significant one which has not yet been fully utilized.

To those of you who in a few minutes are to acquire that coveted designation of doctor of medicine, I commend the concepts of medical internationalism and medical statesmanship. Broaden your sights beyond the local scene; help medicine to take its place as a social science; assist directly or indirectly, physically or morally, to hold the free world and the paramount rights of the individual; play your role in the preservation of a government by and for the people, not a people by and for the government.

In urging the concepts of mutual security and Point Four in Southeast Asia, please do not misunderstand me. I would equally support a program for more bombers, and more guns, and more warships, and for a mutual security in Europe, but I believe that we must fight a disease, be it social or biologic, with proven weapons, and communism is a disease of the body politic.

Our best assurance that this disease will not come to America is to help other countries to avoid becoming infected with it. Prevention is better than cure.

The American Hearing Society points to the following signposts which may indicate defective hearing: a listless and weary expression, frequent requests for repetition, mispronunciation of words, turning one ear toward the speaker, inattention, voice or speech peculiarities, continued failure in school grades, earache, head noises, discharging ears, failure to respond when questioned, avoidance of people.

AN EVALUATION OF THE PRESENT METHODS OF TREATMENT OF PROSTATIC OBSTRUCTIONS

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It is probable that the first surgical operations ever attempted were upon the urinary tract. Galen speaks of "callosities" of the urethra which were destroyed by means of a catheter, and other writings tell of scraping "carnosities" in the urethra and of forced catheterism for the relief of urinary obstruction.

In spite of these early efforts at relief for retention of urine, the true pathologic conception of vesical neck obstruction in its various phases was not known, and the subject remained in a state of confusion for centuries.

The History of Transurethral Surgery

Ambrose Paré in the sixteenth century described a definite operative procedure in which a sound with several sharp ridges on its surface was inserted in the urethra and turned this way and that until the obstruction was overcome. Following Paré, numerous instruments were devised for transurethral surgery, largely following his general principles, but modern methods of treating prostatic hypertrophy date back only to the closing years of the last century.

Perineal prostatectomy emanated from the operation of perineal lithotomy and subsequent perineal prostatotomy through many phases of development until the modern perineal prostatectomy of Young. It is probable that the perineal operation preceded the suprapubic by several years.

Although suprapubic operations with removal of intravesical prostatic tissue were performed earlier, it was not until 1895 that the first reports of removal of both intravesical and intraurethral prostatic enlargements were published.

The mortality rate in the early years was extremely high. Whiteside reported an average mortality rate of 20 per cent prior to 1905. In some reports this reached as high

as 30 per cent. As recently as 1933 the average death rate from either perineal or suprapubic prostatectomy at the hands of most surgeons was 5 to 10 per cent according to the *History of Urology*⁽¹⁾, published in that year.

Although efforts at transurethral relief of prostatic obstruction date back to antiquity, it was not until 1926, when Stern's report of his resectoscope was published, that development of transurethral surgery began in earnest. With the rapid improvement in instruments and technique over the ensuing years, this procedure has come into wide and satisfactory use.

In 1945 Millin⁽²⁾ described a new surgical approach to the prostate. This extravesical retropubic operation is done through a suprapubic incision, but the bladder is not opened. Instead, the anterior surface of the prostate is exposed and enucleation of the adenomatous tissue is accomplished through incision of the capsule of the prostate. This technique allows careful hemostasis in the prostatic bed and at the vesical neck. Suture of the capsule is then done without drainage and with urethral catheter only. The operation has been well received and widely used in removing the large benign adenomas. It may also be used for total prostatectomy, but is not suitable if biopsy is desired prior to removal of the gland.

Through the years each procedure has had its champions. In the hands of careful and well trained surgeons each has yielded good results. Serious questioning of the value of transurethral resection followed the great enthusiasm with which it was first received. This skepticism was due to the troubles encountered by those not trained or equipped to use the technique properly. With the passage of time, and with the efforts of those who recognized its true worth, the operation has now come into what we consider its proper place.

Review of Cases

In order to check on our own progress, we have reviewed the records of those patients with prostatic obstruction treated surgically at Watts Hospital since 1925. These have been divided for purposes of comparison into three groups:

Period	No. Cases	Average Age Years
Group 1—1925-1939	487	64
Group 2—1940-1947	478	66
Group 3—1948-1951	408	68

* Read before the Section on Surgery, Medical Society of the State of North Carolina, Pinehurst, May 6, 1952.

* From the Department of Urology, Watts Hospital, Durham, North Carolina.

Table 1
Types of Operation Performed, and Mortality Rates in Each Group

Group	Type of Operation			No. Deaths	Mortality
	Suprapubic	Transurethral	Retropubic		
1	299	188 (38.6%)	—	19	3.9%
2	68	410 (85.7%)	—	21	4.4%
3	11	391 (95.8%)	7	9	2.1%
Totals	378	989	7	49	3.5%

Transurethral resections

Since transurethral resection has been used in an increasingly large percentage of these patients, some comparisons between the groups as to this particular operation are in order.

Table 2
Analysis of Transurethral Resections

Group	No. Operations	Per Cent	No. Requiring Repeat Operations	No. Deaths	Mortality
1	188	38.6	(?)	13	6.9%
2	410	85.7	51 (12.4%)	18	4.4%
3	391	95.8	22 (5.6%)	7	1.7%
Totals	989			38	3.8%

A breakdown of those requiring repeat operations shows that 30 in group 2 and 10 in group 3 had two-stage operations on the same admission. In addition, 21 patients in group 2 and 12 patients in group 3 were readmitted for further resection and thus are counted more than once. In group 3 there were also 12 patients who had previously had resections performed elsewhere. There were 3 patients requiring transurethral resection on whom previous open prostatectomies had been carried out.

Table 3
Amounts of Tissue Removed by Resection in Groups 2 and 3

Group	Amounts of Tissue Removed by Resection		
	Less than 25 Gm.	25-49 Gm.	50+ Gm.
2	327 (86.3%)	47 (12.3%)	6 (1.4%)
3	244 (62.4%)	113 (28.9%)	35 (8.7%)

(One-stage operations only.)

These figures show a definite trend toward the removal of larger amounts of tissue in the more recent years. This may be accounted for by the increasing ability of operators to resect faster and to achieve more nearly the complete removal of the adenomatous tissue, thus making the procedure suitable for the larger glands.

Length of hospitalization

When we compare the average time in the hospital for the three groups of patients, we find: group 1—24 days; group 2—19.7 days; group 3—13 days. Factors influencing this decreased period of hospitalization are: the better condition of patients on admission; improved surgical technique; and, probably most important of all, control of infection by the use of the sulfonamides and antibiotics. We find that all patients in the second and third groups received one or more of these agents during the hospital period. Though they did not materially alter the percentage of cases with elevation of temperature, they definitely reduced the severity and duration of the febrile periods. For a time it was felt that these drugs would prevent epididymitis, so that routine vas ligation was stopped. Although the number of cases complicated by epididymitis possibly was smaller than would have been the case without the use of antibiotics, there still were enough to justify a return to vas ligation.

Condition of patients on admission

In search of some tangible evidence to support the impression that in recent years patients have been presenting themselves in a better state of health, comparisons between the groups were made as to age, history of complete retention, and requirement of pre-operative catheter drainage. These comparisons show no significant variations between the groups; however, 21 per cent of the patients in group 2 had a blood urea nitrogen of 20 mg. per 100 cc. or above on admission, while in group 3 only 6.6 per cent of the cases yielded this finding. This appears to be one definite indication that patients are seeking treatment earlier. Possibly the improvement in the general health of all the population accounts for the better condition of many of these patients.

Open prostatectomies

The number of open prostatectomies in the latter two groups is too small for satisfactory comparisons. Although we feel that transurethral resections have given highly satisfactory results, prostatectomy is still indicated in certain instances. On what basis is the decision to perform this operation made? The very large gland, 75 gm. or more, is probably best treated by enucleation. Also, patients with large vesical calculi requiring suprapubic cystotomy might well have enu-

cleation of the prostatic adenoma at the same time. The fact that we have limited prostatectomy to such cases accounts for the relatively small number so treated.

Comparison With Other Reports

In comparing mortality rates with recent reports in the literature we find:

Operator	Year	No. Cases	Mortality
Vest ⁽³⁾	1941	380	2.0%
Dorman ⁽⁴⁾	1941	300	8.0
Kahle ⁽⁵⁾	1942	196	12.2
Owen ⁽⁶⁾	1942	527	5.0
Orr ⁽⁷⁾	1943	483	8.3
McCrae ⁽⁸⁾	1945	367	16.8
Coppridge, Roberts & Hughes (present series)		1,373	3.5

Creevy⁽⁹⁾ in 1951 collected, from reports in the literature, 14,947 cases of transurethral resection, with a mortality of 1.29 per cent. From reports covering the same period he collected 6,333 cases treated by enucleation of the prostate by perineal, suprapubic, and retropubic routes. In these cases the mortality was 6 per cent. In the Watts series, with a total of 989 resections, there was a mortality of 3.8 per cent. However, in the past four years there were 391 resections, with a mortality of 1.7 per cent. These results have been obtained in spite of the fact that our poorest risk patients were treated by this method.

Conclusions

From these findings we can safely conclude that transurethral resection is the operation of choice in all cases except those with very large adenomas and those with complicating lesions in the bladder which in themselves require cystotomy. The low mortality, the shortened period of hospital stay, reflecting a lowered morbidity, and the satisfactory functional results obtained justify this conclusion. In addition to these demonstrable factors, the patient's fear of operation has been lessened, so that he now submits to the operation much more readily on being told a resection is to be done.

We hold that in treating a group of aged patients, as a whole, the simplest procedure that will give satisfactory functional results is indicated. Few men between 60 and 70 years of age can be classed as physically sound; most of them show slight to serious physical impairment. Transurethral resection skillfully and carefully performed is the method, in our hands, which the patient tolerates best. Even in cases when complete

operation has to be done in two stages, we think it is less hazardous than the open operation in borderline cases.

Prostatectomy by any method is a major procedure, usually performed on patients who constitute subnormal surgical risks. The modern methods of treatment compare favorably in results with any type of major surgery performed on aged patients.

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Abstract of Discussion

Dr. John Rhodes (Raleigh): It is a high privilege to discuss Dr. Roberts' paper.

The past 25 years has seen the picture of a saddened and anorectic, hiccupping old man in a smelly, wet bed, with a sloughing, alkaline wound entailing three to five weeks of postoperative hospital care, with a 90 per cent chance of recovery, converted into that of a smiling, hungry man, without offensive odor, in a dry bed, more often with no open wound, and with a better than 98 per cent chance of survival, following an operation entailing an average of 13 days' hospitalization. And I may add that his only distinguishing characteristic is the location of his drainage tube.

Dr. Roberts has mentioned the important factors involved in this conversion, but it may be noted that a major reduction in mortality occurred prior to the advent of sulfonamides, antibiotics, and improved facilities for administering transfusions and anesthesia.

I recall the pride of the urological staff at the Massachusetts General Hospital when the mortality figure for the years 1933-35 was found to be 3.3 per cent in patients equally divided between the perineal, suprapubic and transurethral methods of surgery. It was the first time the mortality on that service had dropped below 6 per cent. It seems to us, however, that the most significant single factor in reducing mortality has been the recognition of the importance of pre-operative preparation to restore chemical balance and circulatory stability.

As Dr. Roberts has suggested, there is reason to believe that prostatic patients are seeking treatment earlier in the course of their disease. However, his series, at the same time, shows a rising average age. We are impressed with the high level of application of transurethral resection and the increasingly low mortality, in spite of a rising average patient age.

In the light of the facts brought out by this paper, it would appear that there is little excuse to condemn any patient to permanent tube drainage. We are convinced, however, that in a very bad risk

patient, especially in the presence of long-standing urinary retention, the virtue of prolonged drainage is definite. In this type of patient, we not infrequently establish drainage, preferably by cystotomy tube, for two to three months. Such patients are usually ambulatory, readily cared for in the home, and many of them may return to their occupations during this preparatory period. By election, the final procedure may be suprapubic enucleation or transurethral resection, and in either case, the tolerance of the patients is excellent.

Dr. Roberts has indicated a significant decline in the mortality from transurethral resection—from 6.9 in the earlier group of patients to 1.7 per cent in the later series—despite an increase from 38.6 to 95.8 per cent of patients in these respective groups subjected to transurethral resection. Thus, in spite of increased application of transurethral resection, the reduction in mortality in the past four years to one-half that of the entire series reported attests to the skill of the operator.

Dr. Roberts' figures reveal only 3.7 per cent of 989 patients treated by resection re-admitted for further treatment. Facetiously, one may wonder if all those having recurrences came back. Seriously, however, that is a commendable figure, since 15 years ago most resectionists admitted a 10 per cent recurrence rate.

Dr. Roberts has cited the development of the Millin or retropubic prostatectomy. This operation is applicable to cases complicated by bladder stones. It has been our tendency, with the advent of the Millin operation, to elect open surgery in those cases estimated to require removal of 50 Gm. or more of tissue. This is purely an estimate based on rectal examination, cystogram, and cystoscopy. Occasionally we find that we have resected as much as 70 Gm., and at times we have enucleated a 25 Gm. gland. We often discharge the retropubic patient from the hospital on the seventh or eighth day, and rarely does one stay longer than 12 days.

You should have gathered by now that Dr. Roberts and his associates are excellent resectionists, while we are less effective. Dr. Roberts has given a comprehensive review of a large series of cases with exceptional results.

In conclusion we should like to know:

1. Something of the functional results with respect to continence in the resected patients.
2. What Dr. Roberts' experience has been with post-resection urethral stricture, which has given us some concern.

Dr. Roberts (closing): I want to thank Dr. Rhodes for his most excellent discussion. He pointed out several factors that were not completely covered in the paper because of time limitations.

We have had no cases of permanent incontinence following the resections. There have been some patients who, for a short period of time, had some leakage, but who recovered control after some few weeks.

Strictures of the urethra we have certainly encountered, and I think we always will, but we certainly feel that the incidence and management of these strictures can be taken care of very well if transurethral resection will give satisfactory results and a much lower mortality than we have with the other procedures.

THE USE OF RADIOACTIVE IODINE IN THE DIAGNOSIS AND TREATMENT OF THYROID DISEASE

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and

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Radioactive iodine was first produced in 1934⁽¹⁾, the same year in which artificial radioactive isotopes were discovered. Through these substances, physics provided biology and medicine with a new approach to their problems and a new means by which to attack them. In the beginning the radioactive isotope of iodine was produced through cyclotron bombardment of substances such as tellurium, antimony, and natural iodine. It was available only in the vicinities where cyclotrons were located, and limited also in the small amounts of the isotopes available. Following the close of the second World War, chain reactors such as the one located at Oak Ridge have supplied iodine isotopes in much larger quantities, and have given impetus to research begun in the 1940's.

Characteristics of Radioactive Iodine

The structure of radioactive substances is such that the nuclei of the atoms, in contrast to those of naturally occurring elements, are unstable, and as the atoms undergo decay and transmutation, the nuclei emit radiations of the type which have long been recognized to arise from radium and its degradation products and which can be detected by Geiger-Müller counters. The isotope of iodine emits both beta and gamma rays. The beta emissions are entirely absorbed within a distance of 2 mm. in tissue, and since the thyroid has a specific avidity for iodine, the high concentration of the isotope within the gland produces an intense local radiation effect. The gamma radiation penetrates farther through tissue and much escapes the body, so that little biologic effect is produced.

A further characteristic of radioactive decay is that the rate at which atoms of a sample undergo transmutation depends exclusively upon the number of radioactive atoms present in the sample. The term "half-

⁽¹⁾Read before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Pinehurst, May 7, 1952.

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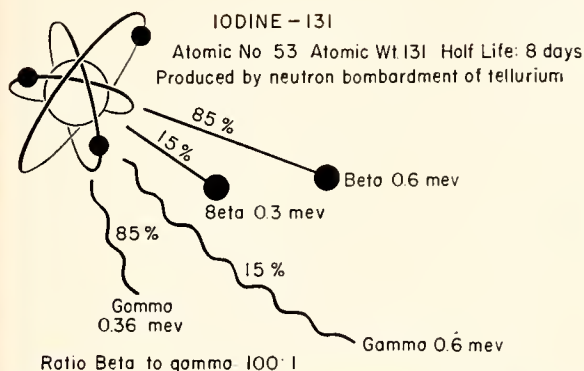


Fig. 1. Physical characteristics of I^{131} . (MEV = million electron volts, a measure of energy).

life" is used to express the length of time which will elapse before half of the radioactive material initially present will have undergone change. Two isotopes of iodine have been made available. I^{130} , which has a half-life of 12.5 hours, was used initially; but the short period of activity made it unsuitable for biologic studies. At present only I^{131} , which has a half-life of eight days, is employed. Some of the physical characteristics of I^{131} are shown in figure 1.

The availability of radioactive iodine, the identity of which is not lost in the body and which differs from naturally occurring iodine only in its characteristic of giving off radiations, has led to rapid progress in the study of thyroid physiology. When administered by mouth, iodine is quickly and almost entirely taken up by the thyroid gland. In a few hours, some of this orally administered iodine will have been incorporated in thyroxine, supposedly the active constituent of the thyroid hormone.

It has been learned that the collection of radio-iodine in the thyroid is influenced by the previous administration of iodine, the activity of the thyroid-stimulating hormone of the pituitary, and the existence of thyroid disease. Administration of thiourea derivatives depresses the uptake of iodine by inhibiting the formation of thyroxine. Because of their effect on the absorption of I^{131} , iodine-containing compounds such as Lugol's solution, as well as propylthiouracil, thiocyanates, and other antithyroid drugs are withheld for four weeks prior to the administration of the isotope.

Diagnostic Methods

In medicine, I^{131} is used both for diagnosis and for therapy. Diagnostically, there are

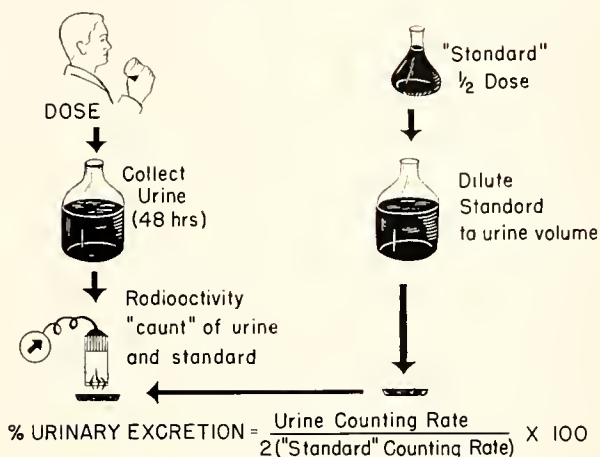


Fig. 2. I^{131} Urinary Excretion Test.

three procedures employing "tracer" doses of I^{131} (so called because for diagnostic purposes they contain insufficient quantities to produce noticeable radiation effects).

Measurement of urinary excretion

The procedure which we use as a diagnostic test and as a check on therapy in hyper- and hypothyroid states consists in measuring the urinary excretion of radio-iodine (fig. 2). The urinary excretion test is simple; it has a fair degree of reproducibility and is not affected by emotional states. It is not suitable for use in infants and young children, or in other cases where the collection of urine is a problem. Indirectly, it measures the avidity of the gland for iodine and, therefore, the degree of activity of the thyroid. Generally a thyrotoxic person will excrete about 20 per cent of a given amount of the isotope in 48 hours, while a normal, or euthyroid, individual will excrete about 60 per cent. A patient with hypothyroidism or myxedema will excrete 75 per cent or more of the radio-iodine in a corresponding period of time. These results, of course, are what might be anticipated. A hyperfunctioning gland is producing excessive amounts of the hormone and needs additional iodine. In myxedema there may be no gland to take up the iodine and virtually all will be excreted.

Direct count over the thyroid gland

A second diagnostic procedure, less commonly used, consists in placing a Geiger-Müller counter directly over the thyroid gland after having administered I^{131} in order to determine the rate of uptake of the isotope and the total amount absorbed by the gland.

The conversion of ^{131}I into the protein-bound form

The measurement of the protein-bound iodine in the blood by chemical means has been of great help in the diagnosis of thyroid disease, but it is a laborious and delicate procedure. Utilizing ^{131}I , Clark and his associates⁽²⁾ have devised a quick and inexpensive method for studying the conversion of orally administered radioactive iodine into the protein-bound form. The patient is given a tracer dose of ^{131}I orally, and 24 hours later a plasma sample is collected and the radioactivity determined by means of a Geiger counter. The protein is then precipitated and counted. As might be expected, the protein fraction in patients with hyperthyroidism usually contains more than 50 per cent of the radioactive iodine in the plasma, which is evidently in the "hormonal" form. In euthyroid and myxedematous individuals, the plasma contains much less of the ^{131}I in the protein fraction.

Despite the objectivity of these procedures, there is some overlapping of the results obtained in euthyroid and hyperthyroid states, so that errors in diagnosis may occur.

Therapeutic Uses

Irradiation of the thyroid for therapeutic purposes is not new, and was introduced as early as 1900. In 1932 a survey⁽³⁾ of 10,000 cases of thyrotoxicosis treated with roentgen

irradiation showed that about 65 per cent were cured, 20 per cent had improved, and 15 per cent were failures. Although roentgen rays and radioactive iodine work in the same manner, by destroying hyperplastic tissue through beta irradiation, the latter is far more satisfactory as a source of radiation. The ^{131}I is rapidly collected within the gland, and more specifically within the lumen of the follicles. This intense concentration of beta irradiation is sufficient to destroy the hyperplastic thyroid tissue, but does not travel far enough to injure other structures. Roentgen irradiation, on the other hand, has to be administered from without and must penetrate surrounding structures of the neck before reaching, or after passing, the target.

Treatment of toxic diffuse goiter

In view of the superiority of ^{131}I over roentgen irradiation—which itself had fair success—it is not surprising that radio-iodine has become well established as an effective means of treatment for toxic diffuse goiter (Graves' disease). Table 1, incorporating recent therapeutic results reported from various clinics⁽⁴⁾, indicates that the administration of ^{131}I produced a remission in more than 90 per cent of the patients treated—a percentage which compares favorably with the results from any other form of therapy. The problem is not one of therapeutic effectiveness but of the judicious selection of patients.

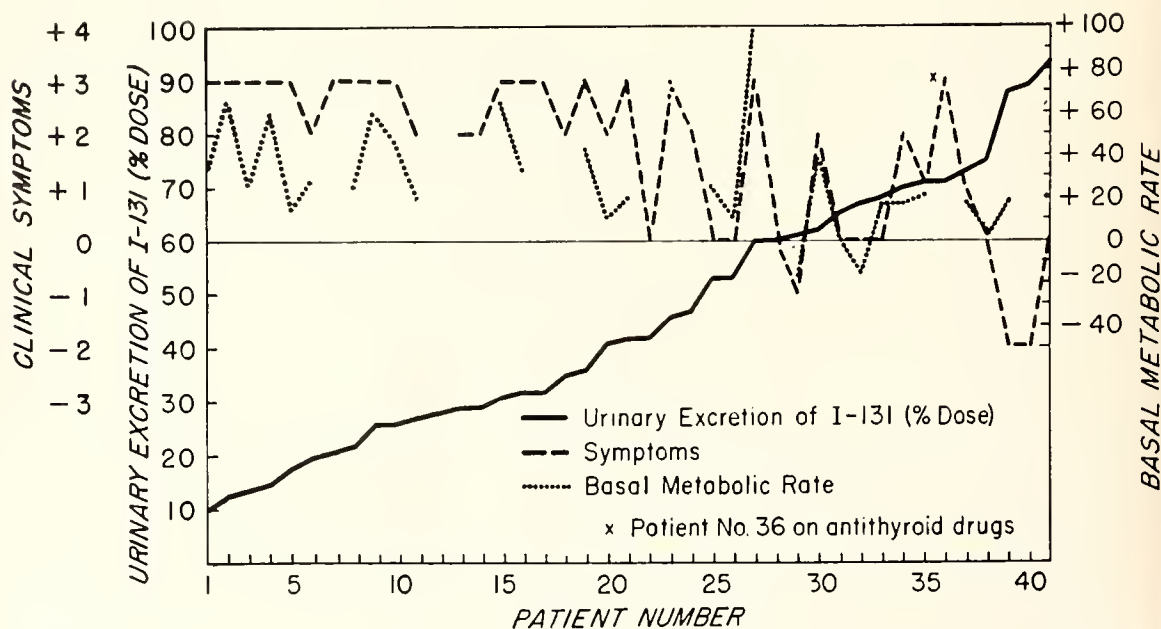


Fig. 3. Relationship of urinary excretion of ^{131}I to symptoms and basal metabolic rate (41 patients).

Table 1
Results of Therapy With I^{131} in Hyperthyroidism
(chiefly toxic diffuse goiter)⁽⁴⁾

Author	No. Patients	Per Cent in Remission
Chapman and Evans ^(4a)	135	85
Kelsey, et al. ^(4b)	55	93
Soley, et al. ^(4c)	46	93
Prinzmetal, et al. ^(4d)	44	93
Feitelberg, et al. ^(4e)	290	99
Werner, et al. ^(4f)	103	95
McCullagh and Richards ^(4g)	203	92

In patients with toxic diffuse goiter, perhaps the clearest indication for radio-iodine therapy is the recurrence of thyrotoxicosis following thyroidectomy. Other patients are selected because of age, severe heart disease, or other severe concurrent but unrelated illness. A poor response to the thiourea derivatives in patients who refuse surgery constitutes another indication for radioactive iodine.

In the beginning only patients over the age of 40 were treated with radio-iodine, since it had been postulated that the intense irradiation might prove carcinogenic many years later. This possibility cannot be disproved at present; however, the prevailing opinion, based on experience with roentgen irradiation, is that such a complication is unlikely. Already leniency has developed in adhering to this age limit, and in many clinics radio-iodine is the only method of therapy employed in Graves' disease.

Treatment is simple, and hospitalization is not necessary except to carry out preliminary diagnostic studies. At our hospital I^{131} received from Oak Ridge is diluted in water and given to the patient to drink. Subjective improvement is often noted within two weeks, and within one month objective evidence of improvement may be apparent. Within two months the majority of patients are in a remission, as evidenced by the pulse rate, the basal metabolic rate, and a gain in weight. In most instances the gland will have become quite small or disappeared. If a remission does not occur in two months, consideration may be given to a repetition of the therapeutic dose of I^{131} .

The major complication to date has been the development of myxedema in about 5 per cent of the cases reported. One patient treated by us went from a state of severe hyperthyroidism to full blown myxedema in three months. No cases of radiation sickness, bone marrow depression, parathyroid damage, or renal injury have been reported. Ster-

ility has not been observed, and in cases⁽⁵⁾ in which pregnant patients have been treated unintentionally with radio-iodine there has been no damage to the fetus. The incidence of progressive exophthalmos following treatment parallels that seen with any other method of therapy.

Treatment of hyperthyroidism associated with nodular goiter

Relatively few cases of hyperthyroidism associated with nodular goiter have been treated with I^{131} , and at present there is no consensus upon the acceptability of radio-iodine in the management of this condition. Most authorities still feel that surgery is the preferred treatment for nodular goiter, especially for those cases in which a discrete adenoma exists or in which, for other reasons, malignancy might be suspected. Nodular goiters have been found susceptible to therapy with I^{131} , although the average dose of radioactive iodine employed is about three times greater than that necessary in Graves' disease, and the period required for remission is prolonged.

Treatment of metastatic carcinoma of the thyroid

Radioactive iodine has also been employed in the treatment of metastatic carcinoma of the thyroid gland. The effectiveness of therapy in such cases depends upon the uptake of the radioactive material by the metastatic lesions, and it has been found that the less anaplastic types of structure concentrate more of the I^{131} ⁽⁶⁾. In about 20 per cent of the cases a survey of the body with a Geiger-Müller counter following a tracer dose of radioactive iodine will give evidence of sufficient uptake of the material to justify therapy; however, if a complete thyroidectomy is accomplished either surgically or by means of radio-iodine, thus removing the normal thyroid gland from the competition of I^{131} , significant quantities of the radioactive material will be taken up by the metastatic lesions in many patients previously refractory to treatment. Following the demonstration of I^{131} in the metastatic lesions, radioactive iodine is administered in amounts of 10 to 15 times greater than that used for hyperthyroidism. The patients are seen at six-week intervals, and therapy is continued as long as uptake is detected following tracer doses. Striking benefit has been obtained in selected cases, but no clinic has yet accumulated a series

of sufficient size and duration to justify conclusions as to the curability of this type of malignancy.

Summary

1. Tracer studies with 131 provide a useful tool for diagnosing hyper- and hypothyroid conditions and for checking on the efficacy of therapy; however, the results obtained in euthyroid and mild hyperthyroid states overlap sufficiently so that errors in diagnosis may occur.

2. The oral administration of radioactive iodine has been established as an effective method of treatment for toxic diffuse goiter, but has not yet gained general acceptance in the treatment of hyperthyroidism associated with nodular goiter.

3. Myxedema has been the major complication following therapy with radioactive iodine. An additional drawback is the length of time required to induce remission, but this is often outweighed by the disadvantage associated with other methods of treatment.

4. In view of the remote possibility of late malignancy following 131 therapy, most authorities feel that it should be employed only in situations where adequate follow-up is available and where there are sufficient facilities to minimize radiation hazards.

5. 131 is apparently an effective agent in the treatment of some cases of metastatic malignancy of the thyroid gland, but it is questionable whether it is possible to induce sufficient concentrations of the radioactive material to result in complete destruction of the cancerous tissue.

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GASTROINTESTINAL DIVERTICULA WITH EMPHASIS ON DIVERTICULOSIS AND DIVERTICULITIS OF THE COLON

PALMER A. SHELBURNE, M.D.

GREENSBORO

A diverticulum is an outpouching herniation, or protrusion of the lining mucosa through the muscularis layer of the intestine which forms a sac of more or less permanent nature. The sac may include all the layers of the bowel wall. Diverticula may occur in any part of the gastrointestinal tract, though they are most common in the colon. The term "diverticulosis" usually refers to the presence of asymptomatic or non-inflammatory diverticula, while "diverticulitis" is used in speaking of inflammation or irritation of a diverticulum.

The anatomic appearance of diverticula was first described by Cruveilhier⁽¹⁾ in 1849. Virchow⁽²⁾, in 1853, recognized and described diverticulitis. In 1898, Graser⁽³⁾ showed that diverticula of the large bowel are of common occurrence, and stressed their importance. Following the close of the eighteenth century, increased interest was evidenced in the subject. Fischer⁽⁴⁾ and Beer⁽⁵⁾ contributed theories relating to the etiology. Mayo, Wilson Griffin^(6,7), Brewer⁽⁸⁾, Gordinier and Sampson⁽⁹⁾, Carman⁽¹⁰⁾, and Drummond⁽¹¹⁾ are among those who have contributed to the understanding of this condition and of its diagnosis and management.

The value of study by means of the roentgen ray was not appreciated until 1915. In 1927 Spriggs and Marxer⁽¹²⁾, using the barium enema followed by roentgenographic examination, recognized the "pre-diverticular state." They described the appearance of a "spiked," "sawtooth," or "accordion" type of bowel as a precursor to diverticula. The clinical importance attached to the condition at present has been responsible in large measure for the general use of the barium meal and the barium enema, as well as the use of air as a double contrast medium.

Etiology, Pathologic Physiology, and Pathology

Diverticula may be congenital or acquired. The first type has been designated by Fischer⁽⁴⁾ as "true" and the latter as "false" diverticula. The true or congenital type is infrequent and is known to consist of all the layers of the intestinal wall. Meckel's diverticulum is an example of this type.

The false or acquired type is exemplified by diverticula found in the sigmoid colon. They are usually multiple, and are semiglobular or fusiform in shape. They vary in size from a barely visible mass to one of several centimeters in diameter⁽¹³⁾, and their walls contain few, if any, muscle fibers. The mucosa herniates through the muscle layer and forms a sac, the wall of which consists of the mucosa, the serosa, and at times the fatty layers. The sac communicates with the lumen of the bowel through its neck or attachment. Pulsion or traction diverticula of the esophagus are exceptions to the rule that acquired diverticula do not contain muscle fibers. Although these diverticula are believed to be acquired, they contain *all* the layers of the esophageal wall.

Although the etiology is not definitely known, many factors are thought to contribute to the formation of acquired diverticula: (1) degenerative processes (including the normal aging of tissues), putrefaction, and irritation of the bowel wall by excessive intake of roughage; (2) the excessive deposit or loss of fatty tissues, resulting in a weakened muscle layer; (3) increased intraluminal pressure produced by irregular bowel habits.

Once diverticula develop, they persist and are often found to increase in number and size with advancing years, until about the age of 60. A patient with roentgen evidence of extensive diverticulosis is more likely to develop diverticulitis than one showing a solitary diverticulum or a few protruding sacculations. According to Graham⁽¹⁴⁾, diverticulitis can be expected to occur in 12 to 15 per cent of the cases of diverticulosis.

Hardened feces may partially occlude and irritate a diverticulum, producing the inflammatory reaction known as diverticulitis. Purgatives, enemas, increased intraluminal pressure, or irritation by roughage may cause this process to progress to peridiverticulitis, in which near-by tissues are involved. This condition may finally result in rupture of the sac into the free peritoneal cavity, into an adjacent viscus such as the bladder or bowel, into the retroperitoneal tissues, or through the abdominal wall. The process may be interrupted at any stage by the free flow of the contents of the involved diverticulum into the lumen of the bowel.

On pathologic examination, the false diverticula so often seen in the colon are covered

by fat; when this is stripped away, they appear as bluish-black, flask-shaped outpouchings. They are usually found in two parallel rows between the mesocolic and antimesocolic longitudinal muscle bands. The herniation occurs in the wall at or near a point where blood vessels pierce the wall. The thin wall of the sigmoid is a site of predilection for diverticula, while the rectum, with its thick wall, is rarely involved. Microscopically, diverticula of the colon are seen to consist of the lining mucosal layer and the serosal layer; a fatty layer may cover the serosa.

The congenital or "true" type of diverticulum—of which Meckel's diverticulum is a classic example—consists of the mucosal lining, the muscular coat, and an outer serosal layer.

Incidence and Location

Most authorities agree that diverticula are uncommon before the age of 35 years and increase in frequency after 45 years. In the 472 cases reviewed in this report, the average age for the development of diverticulosis was 55. The incidence is slightly higher in males (although the present series of 472 cases contained more women than men), and diverticula occur more commonly in obese individuals and in those who have greatly reduced a high weight level.

Diverticula may be found anywhere in the gastrointestinal tract. They occur most often in the large bowel, and according to Sauer⁽¹⁵⁾, 5.2 per cent of 70,572 colons examined at necropsy or roentgenographically showed evidence of diverticulosis. Spriggs and Marxer⁽¹⁶⁾ have stated that the distribution in order of frequency is as follows: (1) pelvic colon, (2) descending colon, (3) iliac colon, (4) transverse colon, (5) ascending colon, (6) whole colon, (7) cecum, (8) appendix, and (9) rectum.

Duodenal diverticula are next in frequency. Spriggs and Marxer⁽¹²⁾ reported finding duodenal diverticula in 3.8 per cent of 1,000 patients studied by barium meal examination. More than 95 per cent of these diverticula project from the second and third portions of the duodenum. Diverticula are rarely found in the esophagus, stomach, ileum, or jejunum.

Between July 1, 1946, and July 1, 1952, 6,580 routine barium examinations (4,627 gastrointestinal series, 45 films of the esophagus, and 1,908 barium enemas) were performed on private patients in Greensboro,

Table 1
Distribution of Diverticula in 472 Cases
Diagnosed by Barium Studies*

Region Involved	No. Cases	Per Cent
Esophagus	14	3.0
Stomach	26	5.5
Duodenum	138	29.2
Jejunum and ileum	11	2.3
Colon**	283	60.0
Total	472	100.0

*In 24 cases (5.1%) diverticula were found in both the upper and lower bowel, but the cases are classified according to the predominance of lesions.

**A single rectal diverticulum was found in the series.

North Carolina, by Drs. I. Bird, E. D. Apple, and Charles W. Reavis. A diagnosis of diverticulosis was made in 472 or 7.1 per cent of these 6,580 cases and a diagnosis of diverticulitis in 87—1.3 per cent of the total number of cases studied, or 18.4 per cent of the cases of diverticulosis. Two hundred and seventy-two (57.6 per cent) of the patients with diverticulosis were females, and 200 (42.4 per cent) were males. The distribution of the lesions is shown in table 1, and is illustrated by roentgen films chosen from the series (fig. 1-14). Figures 1-6 are illustrative of asymptomatic diverticula of the gastrointestinal tract; figures 7-11, of diverticula associated with symptoms; figures 12-14, of diverticulitis with complications.

Since the colon is the most frequent location of diverticulosis, diverticulitis and its various complications, the following discussion of the symptoms and signs, diagnosis, and medical management will be limited to the disease in this area.

Symptoms and Signs

Diverticulosis

In many cases diverticula of the colon are asymptomatic, and are discovered on a routine roentgen examination. In a small percentage of the cases of diverticulosis, however, a painstaking history will elicit one or several of the following symptoms: (1) constipation, (2) abdominal pain, (3) flatulence, (4) diarrhea, (5) pain before and after defecation, (6) irregular or painful micturition, (7) headache or dizziness, (8) blood in the stools, (9) hematuria, and (10) painful hemorrhoids or a tight sphincter producing irregular bowel habits. Physical examination of the patient seldom reveals any signs of the disease.

It is true that numerous patients who present many of these symptoms have no evi-



Fig. 1. Esophageal diverticula.

dence of diverticulosis. However, if diverticula can be demonstrated roentgenographically in the patient with the so-called "chronic colon," a medical regimen designed to protect him against diverticulitis will often afford relief from the symptoms listed above.

Diverticulitis

The signs and symptoms of diverticulitis are much more striking, and are often suggestive of "left-sided appendicitis." Abdominal pain (usually located in the lower abdomen), mild nausea, flatulence and irregularity of bowel habits, slight fever, leukocytosis, and rarely blood in the stools are a part of the picture. Abdominal examination reveals tenderness and a mild degree of localized muscle spasm, often located in the left lower quadrant. These signs and symptoms may persist for one to three days, and then disappear for varying intervals of time; or they may increase in severity.

Frequent and careful observation of the patient will give warning of the onset of complications, provided these are kept well in mind. The development of severe abdominal pain often indicates that a diverticulum has perforated into the peritoneal cavity. The presence of a mass may indicate an indurated or



Fig. 2. Large diverticulum of the cardiac end of the stomach, containing gas and barium.



Fig. 3. Diverticulum of the cardiac end of the stomach. Note the associated esophageal hiatus hernia.



Fig. 4. Large diverticulum of the second portion of the duodenum. The sphincter of Oddi is apparently dilated, permitting barium to enter the common bile duct.



Fig. 5. The isolated collection of barium in the mid-abdomen on the five-hour film is thought to represent a Meckel's diverticulum. Note also the small diverticula in the terminal ileum.



Fig. 6. Multiple small diverticula throughout the colon.



Fig. 7. The large diverticulum in the anterior portion of the upper esophagus was associated with difficulty in swallowing and regurgitation of food.



Fig. 8. (a) The patient complained of a sense of fullness and "gas" after meals. Roentgen examination after a barium meal shows a large diverticulum of the cardiac end of the stomach. Note the fluid level and gas bubble in the diverticulum. Symptoms were relieved by postural drainage of the diverticulum.



Fig. 8. (b) A gastrointestinal series done 24 hours later shows retention of barium in the diverticulum. The examination is otherwise negative except for a functioning gastroenterostomy created 10 years previously for relief of an obstructing duodenal ulcer.



Fig. 9. Severe epigastric distress following meals was caused by the large diverticulum in the fourth portion of the duodenum. The patient has done well on a bland, low-residue diet, and abdominal massage after meals.

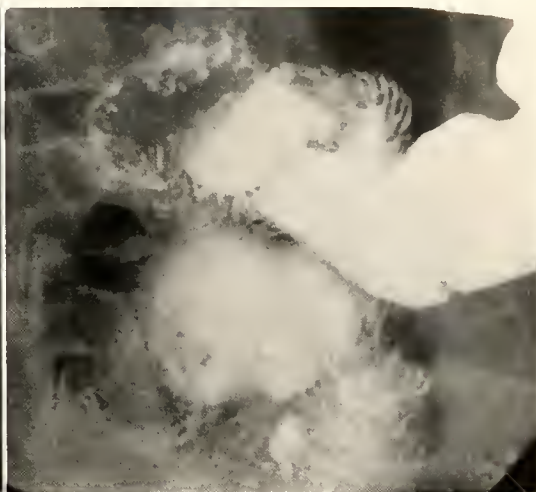


Fig. 10. A huge diverticulum is present in the proximal jejunum. Surgery is contemplated because of typical recurring attacks of diverticulitis.

thickened sigmoid or a localized abscess. Rupture of the abscess into the rectum may be followed by the presence of pus in the rectum and a disappearance of the mass. The presence of blood, pus, feces, or gas in the urethra may indicate a rupture into the bladder and foretell the formation of a vesicocolic fistula. In other cases the abscess may open into the vagina, the retroperitoneal space, or through the abdominal wall. Surgical intervention is usually necessary when any of these complications occur.

Diagnosis

A careful history, physical examination, roentgen study, and sigmoidoscopic examination will usually disclose the presence of diverticulosis or diverticulitis of the colon. The sigmoidoscopic examination will rarely reveal diverticula openings, but will give information aiding greatly in the diagnosis. Spasm, edema, obstruction, sharp angulation, and evidence of immobility may be observed.

A barium enema examination, followed by the injection of air as a double contrast medium, is the most reliable diagnostic procedure—though even this is not infallible. An opportune time for study, preferably two or three weeks after an acute attack of diverticulitis, should be chosen. The injection of barium or air under pressure during an attack can increase the intracolonic pressure sufficiently to cause a rupture into the peritoneal cavity. A film taken after the administration of small amounts of barium by mouth,

and a post-evacuation film following the barium enema will often aid the roentgenologist to demonstrate evidence of diverticulitis.

Conditions to be considered in the differential diagnosis are carcinoma, hyperplastic tuberculosis of the colon, acute appendicitis, ulcerative colitis, ileocolitis, pelvic inflammatory disease, perinephritic abscess or subphrenic abscess, pyelonephritis, hypernephroma of the left kidney, malignant lesions involving glands of the retroperitoneal space, Boeck's sarcoid with intestinal involvement, and actinomycosis.

Diverticulitis and carcinoma are frequently found in the same patient. The roentgen examination is the best means of diagnosing either condition. The sigmoidoscopic examination may disclose a carcinoma in the rectosigmoid region, where diverticula are seldom found. Loss of weight, anemia, absence of fever or leukocytosis, the history of a recent change in bowel habits and of blood in the stool, and the absence of a history of recurrent attacks are all more suggestive of carcinoma than of diverticulitis. In case carcinoma cannot be ruled out with a fair degree of certainty, surgery is indicated.

Hyperplastic tuberculosis of the colon usually confines itself to the cecum, where diverticulitis is rare.

Acute appendicitis is often confused with diverticulitis, and surgery may be postponed if the patient is known to have a solitary cecal diverticulum or an acute diverticulitis in a redundant loop of sigmoid adherent to



Fig. 11. Multiple large diverticula are present in the sigmoid and descending colon, and there is spasm in the region of the sigmoid. The patient is recovering after an acute illness characterized by symptoms suggestive of left-sided appendicitis.



Fig. 12. The patient complained of difficulty in swallowing. Roentgen examination disclosed a large lobulated sac adjacent to the esophagus. Resection revealed a growth showing sarcomatous degeneration within the esophageal diverticulum. The patient is asymptomatic three years following operation.

the right abdominal quadrant. Operation is usually indicated if the patient is acutely ill with signs and symptoms suggesting appendicitis, since this disease is so much more common than other acute abdominal conditions.

Medical Management

The proper management of diverticulosis and diverticulitis of the large bowel is by a conservative medical regimen. Surgical procedures should be performed only if one of the following eventualities should arise⁽¹⁷⁾: (1) perforation of a diverticulum, (2) peridiverticular abscess formation, (3) obstruction, (4) fistula formation, or (5) failure to establish a definite diagnosis.

Asymptomatic cases

Asymptomatic diverticulosis requires no treatment.

Subacute diverticulitis

In patients with subacute diverticulitis who have had previous acute attacks, a prophylactic medical regimen is essential to prevent a recurrence of acute diverticulitis and the possible development of complications necessitating surgical intervention.

Irregularities of bowel habits should be corrected by an adequate fluid intake, diligent efforts to acquire a "habit time," and, if necessary to correct constipation, the temporary use of mineral oil with or without one of the mucilaginous preparations. The patient should adhere to a diet containing foods of low residue, and should avoid milk, foods which have coarse fibers and seeds, excessive condiments, rich foods, and alcohol. Six small meals daily are preferable to three large ones. An afternoon rest period is usually helpful.

In patients with evidence of slight bowel irritability, a mixture containing equal amounts of bismuth subcarbonate, barium sulfate and kaolin may be taken in doses of 1 drachm three times daily. Phenobarbital and atropine should be reserved for patients with more irritable bowels, who should be given as much of the latter drug as they can tolerate.

Frequent irrigation of the bowel is often recommended, but in my opinion this should be avoided. In an occasional case where painful hemorrhoids or a tight sphincter is causing constipation, 3 or 4 ounces of warm oil



Fig. 13. Roentgen examination performed three years previously because of bleeding from the gastrointestinal tract was negative except for the presence of a duodenal diverticulum. Operation revealed a large ulcer within the diverticulum. Resection was deemed inadvisable and a simple gastroenterostomy was performed. The present film, made because of a recurrence of bleeding, shows a functioning gastroenterostomy and no evidence of marginal ulcer. A barium-filled diverticulum is seen in the third portion of the duodenum.

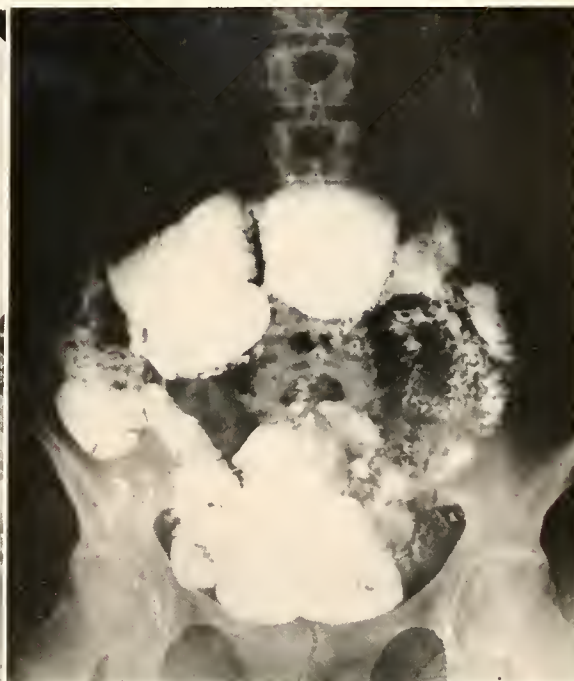


Fig. 14. This examination was done because of a massive gastrointestinal hemorrhage. What appears to be a tremendously dilated jejunum proved, at operation, to be two huge diverticula of the jejunum producing an almost complete obstruction.

may be given as a rectal retention enema to promote elimination until these conditions can be corrected by surgery.

Acute diverticulitis

If acute diverticulitis develops, a more rigid medical program should be employed. Sigmoidoscopic examination and the administration of barium by mouth or by rectum should be postponed. The patient should be put at complete bed rest, with heat to the abdomen by means of stupes, a heating pad or diathermy, and atropine and phenobarbital should be administered. If symptoms do not soon lessen in severity, the oral intake of fluid and food must be stopped and parenteral fluids, including plasma and blood, substituted. It is important to maintain a proper chemical balance.

Some authorities believe that chemotherapeutic and antibiotic drugs given early in an attack will greatly lessen the complications of diverticulitis.⁽¹⁸⁾ The oral administration of Sulfathalidine^(17,18) or Sulfasuxidine—1

Gm. of the former or 3 Gm. of the latter every four hours—seems to shorten the course of the illness. These drugs act locally in the colon. A systemic effect is produced by an aqueous solution of penicillin, 400,000 units given intramuscularly every 12 hours, or streptomycin given by intramuscular injection in doses of 1 Gm. every twelve hours for a period not to exceed four days. Great care must be used to detect early signs of intoxication or unusual sensitivity to streptomycin. At the first unfavorable indication, the drug should be discontinued. Recently Mayo⁽¹⁸⁾ has used aureomycin in gelatin, 500 mg. every six hours, in combination with streptomycin.

If attacks of diverticulitis recur frequently in patients who are following a sound prophylactic regimen, diligent search should be made for some complicating disease which may be responsible for the recurrent attacks. Oral sepsis, gallbladder disease, peptic ulcer, or carcinoma often complicates or confuses the picture of chronic recurring diverticulitis.

Illustrative Cases

Three of the cases of diverticulosis of the colon which I have treated serve to illustrate



Fig. 16 (Case 1)

some of the diagnostic and therapeutic problems encountered.

Case 1

In 1940, during the course of a routine physical examination, a 50 year old white man was found to have numerous diverticula of the colon. One year following this examination, the patient was one of several who became ill following a banquet. He was hospitalized because of extreme nausea, diarrhea, fever, leukocytosis (over 20,000), and symptoms suggesting "left-sided appendicitis." Persistent nausea made necessary continuous drainage by Wangenstein suction. Proper fluid balance was maintained by intravenous glucose in saline. Heat was applied to the abdomen by diathermy, and opiates and atropine were administered parenterally for relief of abdominal pain and diarrhea. Recovery followed two weeks of hospitalization. A sigmoidoscopic examination performed after a further delay of three weeks was not revealing. Roentgen examination following a barium enema (fig. 15) showed diverticulitis of the colon.

During the next eight years, the patient followed with average care a program consisting of a bland, low-residue diet, the omission of purgatives and laxatives, and avoidance of overeating. Attacks of diverticulitis occurred at intervals of approximately two years during this eight-year period.

In 1949 the patient suffered an attack of acute cholecystitis. Following the administration of dye, roentgen examination revealed a small, poorly concentrating gallbladder containing one stone. A barium enema examination (fig. 16) showed that the diverticula had increased in number and size since he was examined in 1941 (fig. 15). Cholecystectomy was performed in 1949. During the next two years the patient had four attacks of diverticulitis, which were accompanied by hematuria and polyuria. These attacks were not as severe or prolonged as previous episodes had been, and it is believed that the use of antibiotic and chemotherapeutic drugs was responsible for this beneficial effect. At the onset of an attack, the patient was given Sulfathalidine orally, and penicillin and streptomycin parenterally. On two occasions terramycin alone, given in doses of 250 mg. every four hours, was found equally as effective as the other antibiotic drugs.

In 1951, following a careful urologic examination, prostatectomy was performed for the removal of a very large, benign prostate. Since then the patient has had no further urinary symptoms or attacks of diverticulitis.



Fig. 16 (Case 1)

Case 2

The patient was a 51 year old man who had had recurrent attacks of "left-sided appendicitis," with diarrhea, blood in the stools, and elevation of the temperature and leukocyte count. A barium enema examination revealed evidence of diverticulitis involving the descending colon. In June, 1941, during an acute attack, a mass developed in the left lower quadrant of the abdomen. The acute symptoms subsided following spontaneous rupture and drainage of an abscess through the abdominal wall. The patient refused operation, and recovered after six weeks of bed rest and medical treatment.

Case 3

A white female, aged 63, was admitted to Wesley Long Hospital in May, 1952. The patient complained of constipation and pain in the left lower quadrant of the abdomen. Examination revealed a temperature of 102 F. and the presence of a mass the size of an apple in the left lower quadrant; on rectal examination, no blood was found on the examining finger. The leukocyte count was 17,500. Sigmoidoscopic and roentgen examinations were delayed, and a tentative diagnosis of diverticulitis was made.

The patient was permitted a liquid diet, and was given Sulfathalidine, (1 Gm. orally every four hours for five days) and aureomycin, 250 mg. in a small amount of milk every four hours for twelve doses. A liter of glucose in saline was given intravenously every twelve hours. The patient was permitted to leave the hospital after five days.

Three weeks later, a careful sigmoidoscopic examination revealed evidence of edema and spasm of the bowel. Roentgen examination after a barium enema (fig. 17) revealed the presence of diverticulitis.



Fig. 17 (Case 3)

Summary

1. Diverticulosis is a condition of uncertain etiology which frequently causes no symptoms, but which may lead to serious complications.

2. Diverticula may occur anywhere in the alimentary tract, but are most common in the colon.

3. The sigmoidoscopic and barium enema examinations are the most important aids in diagnosis.

4. Except when complications of diverticulitis arise, the treatment of this condition is always medical.

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THERE WERE GIANTS IN THOSE DAYS

The Evolution of Medicine in North Carolina

FREDERICK R. TAYLOR, M.D., F.A.C.P.

HIGH POINT

Medicine does not evolve of itself any more than does any other field of human endeavor. It is evolved by the genius of the leading men and women who have dedicated themselves to it. My favorite definition of genius has been attributed to Thomas A. Edison: "two per cent inspiration and 98 per cent perspiration."

A British physician-philosopher, Dr. John Locke, gave to His Britannic Majesty's Colony of Carolina "Locke's Grand Model Constitution,"⁽¹⁾ written on the principle that "compact is the true basis of government and the protection of property the great end." Making property paramount to humanity caused this constitution to be abandoned.

The records of medicine in colonial North Carolina are brief and widely scattered. I will summarize a few items from a chapter on "The Two Carolinas" in *Aesculapius Comes to the Colonies* by Maurice Bear Gordon, M.D.⁽²⁾

Before the separation of the two Carolinas, Charleston, or Charles Town, as it was then called, was the medical center of the South. However, that does not concern us here.

Dr. Will Scrivener, Lord Berkley's deputy, died in 1671, but was more politician than physician.

Read by invitation before the J. C. Trent Society for the History of Medicine, Duke University, April 1, 1952.

From the Department of Internal Medicine of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.

In the early days, a great variety of medicinal herbs was found in the colony. One yielded China Root, used to "mundify and sweeten the Blood," and said to be good in Fevers, Gonorrhea, and Lues Venerea." Various types of Rattlesnake Root were considered "Sovereign against the Mortal Bite of that Snake," and were said to be "Specific in Plague, Smallpox, and Malignant Fevers."

Dr. John King, of what is now Chowan County, was the earliest physician of North Carolina whose name I have found. An itemized account of his services to a patient in 1694 exists, the charges varying from five shillings for a minimal service to four pounds for eight days' attendance at 10s per day.

Joseph Marboeuf de la Bruce was a very early apothecary of Craven County, though his dates are not given.

The DeRosset family of Wilmington provided six notable physicians whose practice spanned 146 years.

Dr. John Brickell of Edenton returned to his native Ireland, where he published in 1737 his famous *Natural History of North Carolina*, and in 1745 *A Catalogue of Native Trees and Plants Which Will Bear the Climate of England*. His description of rattlesnakes as given in the former book by Gordon is worth quoting: "They are a majestic sort of creature and seldom or never bite (except they are provoked) which they cannot do until they gather themselves into a Quoit or Circle. . . . They shake and shiver with wonderful nimbleness."

Dr. Nathaniel Alexander served in the Revolution and eventually came to Charlotte. He was successively a member of the North Carolina House of Commons in 1787, state senator in 1801, United States congressman in 1805, and Governor of North Carolina, as a climax to his career. He was called "a physician of eminence in Mecklenburg."

Dr. Ephraim Brevard of Charlotte helped promulgate the Mecklenburg Declaration of Independence.

Dr. Gordon quotes the following advertisement from *The North Carolina Gazette* for February 10, 1776:

"Any person that will dispose of their Front Teeth (slaves excepted) may receive Two Guineas for each by calling on Dr. Laymeur. For further particulars, inquire of the printer."

In 1950 Mrs. Josiah Trent published a series of "Thumbnail Sketches of Eminent North Carolina Physicians" in the *North*

Carolina Medical Journal⁽¹⁾. One of the earliest of these was Dr. Hugh Williamson of Edenton. Born in Pennsylvania, he was successively a minister, professor of mathematics in the University of Pennsylvania, and a physician trained in Edinburgh and Leyden. He wrote on yellow fever, epidemiology and climatology, and produced a two volume history of North Carolina. A member of various important scientific societies, he corresponded with Benjamin Franklin and held an honorary degree from Leyden. In letters to Governor Caswell in 1779 and to Thomas Burke in 1781, he mentioned the scarcity of medical supplies in those Revolutionary days. A state record of October 27, 1780, is that of an order or warrant to impress medical supplies for the army if they cannot be purchased reasonably. Even before this, Joseph Hawes wrote Samuel Johnston of the scarcity of such things, though he was sending six chests of medicine and a hundred weight of "bark" to North Carolina from Philadelphia.

Much later, in the Civil War, Ashe, in his *History of North Carolina*⁽²⁾, also notes great scarcity of medical supplies, and says that gardens were growing opium poppies, Jamestown Weed, and castor oil beans to relieve the deficiency in part.

In 1951 Dorothy Long⁽³⁾ of Lexington, Kentucky, published sketches of Calvin Jones of Smithfield, a pioneer in vaccination, and Jeremiah Battle of Tarboro, who wrote many medical papers. This year she has written of Dr. Hans Martin Kaberlahn, the great Moravian pioneer physician in Wachovia. The Moravians were noted for their interest in medical matters.

R. D. W. Connor⁽⁷⁾ quotes Miss Schaw as describing the North Carolina coastal "peasants" of colonial days as "tall and lean, with sallow complexions and languid eyes, when not inflamed by spirits. Their feet are flat, their joints loose, and they walk uneven."

Dr. Brickell mentioned chills and fever in the swamps, clay and dirt eating, and also "Diarrhea, Dysentery, Clap and French Pox, the Yaws, Colicky Disorders, Cholera Morbus, Convulsions, Hooping Cough, Cutaneous Disorders such as Tetters, Ring Worms, Rashes, prickley-Heats, and the Itch." He does not mention yellow fever or smallpox!

Dr. Godfrey Spruill, who practiced in Edenton from 1702, was arrested in 1713 and placed under bond for good behavior. What his misdeeds were, Connor does not say.

George Allen, "Chyrurgeon," was described as "a man of vile character, constantly in the clutches of the law." Dillard tells us that he cursed King George!

Thomas Iredell, in 1770, warned his nephew, James Iredell, against physicians who "more commonly understood their trade better than their profession, and found it to their interest (how criminal soever it may be) to exercise the one than to practice the other."

Miss Janet Schaw, in her *Journal of a Lady of Quality*,⁽⁸⁾ praises Dr. Thomas Cobham of Wilmington, though her opinion of North Carolina physicians in general is far from flattering.

Dr. John Eustace, also of Wilmington, had a fine library of 292 volumes, 118 of them medical books. Nearly every plantation library contained a few simple books on medicine and surgery.

John Heritage Bryan⁽⁹⁾ of New Bern and Raleigh mentioned various prescriptions of those early days. One for dyspepsia reads:

- 1 quart hickory ashes
- 1 pint soot
- 1 ounce powdered rhubarb
- 1 gallon boiling water

Let it settle and give a wineglass before breakfast, at noon and bedtime.

A drastic cholera remedy contained 5 grains each of calomel and camphor, 3 grains of cayenne, and 1 grain of opium, to be taken every two hours!

Dr. Gabriel Johnston of Hertford, a graduate of St. Andrews in Scotland, became Governor of North Carolina.

Dillard⁽¹⁰⁾ mentions many other physicians of the Albemarle Sound region. One doctor near Edenton, insisted that the smaller frogs sang all night "Quinine, Quinine," and the bullfrogs replied "Calomel, Calomel."

Bishop Joseph Blount Cheshire, in his book *Nonnulla; Memories, Stories and Traditions more or less Authentic, About North Carolina*,⁽¹¹⁾ tells of two medical martyrs, Drs. Frederick Ramake and John Beasley, both of Edenton, indicted in 1798 for practicing inoculation of smallpox according to the accepted usage of the day. They were, however, acquitted. The bishop adds that his paternal grandmother, born in Edenton in 1790, was so inoculated.

The North Carolina Colonial and State Records⁽¹²⁾ mention many legislative bills concerning medical practice in colonial days, but the content of the bills is not given.

Medical Society of the State of North Carolina⁽¹³⁾

In 1799, the Medical Society of the State of North Carolina became the first state medical society in the United States. Dr. Richard Fenner was the first president, serving again in 1800. From 1801 to 1804 inclusive, Dr. John G. Osborne was president. All sessions were in Raleigh. After 1804 the society did not meet again until it was reborn and reorganized 45 years later, with 25 members, under the presidency of Dr. F. J. Hill. For two years after this the great Dr. Edmund Strudwick of Hillsboro was president. The society has continued to meet annually since, except for the Civil War years of 1862-1865. In 1949, at the one hundred and fiftieth anniversary of the society, Drs. William deBerniere MacNider and Hubert Ashley Royster summarized the society's history⁽¹⁴⁾.

Pioneers in the Specialties

Practically all the greatest old-time physicians were general specialists from necessity. Many were botanists of parts, growing foxglove and other medicinal herbs. Many were true naturalists, finding "sermons in stones, books in running brooks, and good in everything." Those men knew how to make bricks without straw. Even with the dreadful roads of the time, at least after the advent of the railroad, the more eminent physicians, such as Edmund Strudwick of Hillsboro and Charles J. O'Hagan of Greenville, had a consulting practice with a radius of 100 miles or more. Dr. O'Hagan had such uncanny diagnostic ability that his name became legendary in eastern North Carolina. A former elderly patient of mine had been his patient in her girlhood. All who knew him seem to have been impressed with his courtly manners, great professional skill, and that inward power which marks every great physician.

Dr. O'Hagan's grandson, Dr. Charles O'Hagan Laughinghouse, also of Greenville but later State Health Officer at Raleigh, under whom I had the privilege of working for one and one-half years, inherited some of his ancestor's resourcefulness and passed it on to his colored chauffeur. In those days, surgery was done on kitchen tables with whatever help might be available. Dr. Laughinghouse had trained his chauffeur to give chloroform, the usual anesthetic of the day. A drunk doctor called Dr. Laughinghouse to a small cabin, where he heard an ominous

dripping of blood. A shotgun blast had almost blown a man's arm off, severing the brachial artery. The drunk doctor could not even apply a tourniquet effectively. Dr. Laughinghouse did this and prepared to amputate. The chauffeur set up the acetylene lighting system of the car for the operation. Then the drunk doctor started *pouring*, not dropping, the chloroform on the cloth. Dr. Laughinghouse feared this would kill the patient, but fortunately the chloroform bottle slipped from the doctor's hand and fell to the floor. Instantly, the chauffeur picked it up, substituting for it a bottle of tincture of green soap, which the doctor kept pouring on, oblivious of the lather he was making, and the man was saved.

Dr. Laughinghouse was a giant in repartee as well as in medicine. Once, while he was State Health Officer, some ladies honored him with a luncheon in a Winston-Salem hotel. After lunch he started to smoke a Lucky Strike cigarette. One of the ladies knocked the pack of Luckies off the table and said with mock hauteur, "Dr. Laughinghouse, when one comes to Winston-Salem, one does *not* smoke *inferior* brands of cigarettes. Waiter, bring the Doctor some cigarettes." Camels were brought. Dr. Laughinghouse apologized most graciously, but then stood up, took off his coat and vest, untied his tie, and unbuttoned his collar. Asked WHAT he was doing, he replied, "Well, ma'am, you have convicted me of a grave social error in coming to Winston-Salem and failing to utilize Winston-made products, but I'll have to confess to you, ma'am, that I'm guilty, not of one such error, but of two, for do you know, I'm wearing B. V. D's. made in Lexington, and if you'd have the waiter bring me a suit of Hanes, I'd be delighted to put it on!" Dr. Laughinghouse told me that this was correctly reported in the *Raleigh News and Observer*, and that the American Tobacco Company sent him a large supply of Luckies gratis and expressed the hope that the B. V. D. people would see to it that he didn't suffer any from the cold during the coming winter!

It is said that the first man to administer an anesthetic—ether—in North Carolina was Dr. Lane Robbins of Old Jamestown, about 1857.

There is no greater name in North Carolina medical history than that of Dr. Edmund Strudwick of Hillsboro, hence the ward in

Duke Hospital bearing his name. Many are familiar with the story of his operation for strangulated hernia which he performed while his own leg was broken and unset. It may be found in the greatest of all North Carolina medical books, *Medical Morals and Manners*, a series of addresses and essays by Dr. Hubert A. Royster of Raleigh⁽¹⁵⁾. Dr. Strudwick superintended the building of our first State Hospital at Dix Hill.

Abram Van Wyck Budd of Egypt, now known as Cumnock, in Chatham County, is also sketched in Dr. Royster's book as *Budd of Chatham*. He was surgeon to the Egypt coal mines and also developed a far-flung general practice. Next, he served as a medical officer in the Confederate Army. The mines shut down after the war, so he moved to near-by Lockville, also in Chatham County. His psychiatry was of the direct-action type, such as tying in his road-cart a nervous woman afraid of everything and lashing his horse to a gallop. It is said that the woman was never nervous again! Budd built a fire under one woman's bed to make her get up, —and started to undress as if to get in bed with a prim maiden-lady to achieve the same purpose. Though the latter had been in bed over a year, she got out and ran some distance down the road. After an operation in the home, Budd would stay with a penniless patient till he was out of danger. A patient with money could hire someone else.

State institutions and small hospitals owned and operated by individual doctors or medical partners preceded the present great cooperative hospitals of our medical centers. The new state plan of developing high-grade rural hospitals is a great step in the evolution of North Carolina medicine.

Psychiatric care

The need for custodial care made psychiatry the first speciality in our state. The real founder of North Carolina psychiatry was a frail tuberculous woman, Dorothea Lynde Dix, the greatest name in the history of psychiatry in the world, for she caused to be established, expanded, or improved, many psychiatric hospitals in the United States, Europe, and even Japan. She made it her lifework to stop the mistreatment of the insane and further their proper care literally throughout a large part of the world.

In 1825 our General Assembly investigated the possibility of establishing a state hospital for mental diseases, but did nothing about

it. In 1848 Miss Dix made a three months' survey of the insane in North Carolina, finding them, as elsewhere, chained in jails, almshouses, or even in unheated cages. She made a detailed report to our General Assembly and asked it to appropriate funds for a suitable hospital for the treatment of mental disorders. Still, nothing was done. However, while the Assembly was still in session, Miss Dix nursed Mrs. James G. Dobbin, the wife of a Cumberland County representative, in her last illness. Asked what she would like to have, Miss Dix requested that the appropriation be put through. Immediately after Mrs. Dobbin's funeral, Mr. Dobbin entered the Assembly hall and made such an eloquent plea that the appropriation was granted overwhelmingly. The state wished to name the hospital Dix Hill in Miss Dix's honor. She declined, but asked that it be so named in honor of her grandfather, Dr. Elijah Dix of Boston, and so it was. A portrait of Miss Dix hangs in the hospital reception room. I published a more detailed account of her life story in the June, 1949, *North Carolina Medical Journal*⁽¹⁶⁾.

"The Doctors Wood"

North Carolina medicine owes much to the Woods, father and son of Wilmington. Their story is told in a series of tributes, "The Doctors Wood," contained a special Wood Memorial number of *Southern Medicine and Surgery*⁽¹⁷⁾.

The father, Dr. Thomas Fanning Wood, really founded our State Board of Health and was our first State Health Officer. Another great pioneer in North Carolina public health was Dr. Richard H. Lewis of Raleigh. In 1878, Dr. Wood founded the old *North Carolina Medical Journal*, which later became *Southern Medicine and Surgery*. He was a member of the Committee on Revision of the Pharmacopeia of the United States from 1880 to 1900. In 1888 the University of North Carolina gave him the degree of LL.D.

The son, Dr. Edward Jenner Wood, was the foremost medical scholar of his day in North Carolina. He and Dr. William Allan of Charlotte were pioneers in the field of internal medicine. He, Dr. Allan, Dr. Minor of Asheville, and Dr. MacNider of Chapel Hill were for years the only North Carolina members of that very elite organization, whose membership was limited to 250 internists from the United States and Canada, the Association of American Physicians. At one

time a lecturer in Guy's Hospital, London, the younger Wood had the degree of Doctor of Tropical Medicine from the University of London. He also studied in Germany. He was a world authority on pellagra and sprue, writing a book on the former and also a chapter on it in *Oxford Medicine*. At 32 he was president of the Medical Society of the State of North Carolina. His death from a coronary occlusion at 50 shocked the profession of the state. The following year he had been scheduled to take part in a great symposium on deficiency diseases in Boston, under the chairmanship of Dr. George Minot, along with Lafayette B. Mendel, S. Burt Wolbach, Randolph West and Joseph Goldberger. Wood's subject was sprue. I was honored with Dr. Wood's friendship. His reception room was filled with autographed photographs of the ancient and venerable of the medical world, among which I particularly remember that of Sir Patrick Manson.

Other pioneers

Another great pioneer must not be overlooked, the super-brilliant Dr. Charles L. Minor of Asheville. Extremely tall—I think at least 6 feet 5 inches—and so thin that he called himself a human giraffe, though he looked more like a gigantic stork as he peered down at you from the heights through nose-glasses, he was the pioneer tuberculosis specialist of the state. He drove his car furiously in downtown Asheville. Though nervous, fidgety, striding along almost on seven-league boots, and constantly on the move, this man was a dignified, cultured scholar of the first rank. In 1925, when chairman of the Section on the Practice of Medicine of our State Society, I obtained his consent to appear on the program. When he was called to New York to see a Vanderbilt in consultation, I wired him that he could make it back and that I was holding his place for him, pointing out that he, a member of the true medical nobility, owed it to us lesser men to share his great knowledge and spirit with us. He made the program.

The indefatigable pioneer researches in this state in medical genetics initiated by the late Dr. William Allan in Charlotte and continued in Winston-Salem when a special chair of Medical Genetics was set up for him at Bowman Gray, which is now being occupied by his former associate, Dr. C. Nash Herndon, marked a new development in medicine in North Carolina. A few of our isolated

mountain families who have intermarried for generations offer unusual opportunities in the study of heredity.

Mention pharmacology to any North Carolina doctor and he thinks at once of Dr. MacNider. The same is true of Dr. Whitehead in anatomy and Dr. Manning, Sr., in physiology.

The latest North Carolina physician to become a college president was Dr. Thurman D. Kitchin of Wake Forest, now president emeritus.

Many pioneers in other specialties are still living, so I will not pick and choose among them. All, or nearly all specialties are now represented in our state.

Medical Education in North Carolina

Finally, we must consider medical education in North Carolina. Of course, originally, young men "read medicine" in the offices of established physicians.

It is not very widely known that the first two medical schools in the state were in old Jamestown, about five miles from High Point. They do not appear in the "History of Medical Schools in North Carolina" in the *American Medical Directory*⁽¹⁸⁾. They were proprietary affairs in private homes. The first was operated by Dr. Madison Landsey from about 1820 to 1830. The second, only a few doors away, was run by Dr. Shubal Coffin from about 1840 to 1850 or a little later. I knew an elderly lady, Mrs. Martha Robbins Tilden, now deceased, who lived in the house once occupied by the second school. She told about someone going under the house to get firewood, and splitting up a coffin lid for the purpose. It had been used in the old school to carry bodies when grave-robbing for cadavers was rife. It is said that a Negro engaged in such work had a hysterical chill, saying that the cold body had chilled his spine!

The earliest North Carolina school listed in the *American Medical Directory* is one of which I have no other knowledge. The Directory states that the Edenborough Medical College of Edenborough Community, in that part of Robeson County which was later split off to make Hoke County, was chartered in 1866 and became extinct in 1877.

The next oldest school, also unknown to me, was the College of Physicians and Surgeons of Wilmington, organized in 1871, though no lectures were given.

The University of North Carolina School

of Medicine was organized in 1879 as a medical preparatory school, but abandoned in 1886, according to the Directory. It was reopened in 1890 as a two year school, continuing thus until 1902, when a clinical department was set up in Raleigh which graduated full-fledged doctors from 1903 to 1910, inclusive, when it reverted to a two year school and continued as one of the best in the country until its present expansion. It has been coeducational since 1914. It was the first state university in the land to offer field extension courses in medicine, a great service to the profession and people of the state, especially in rural sections.

In 1882 the Leonard Medical School for Negroes, the medical department of Shaw University in Raleigh, was established. Classes were graduated from 1888 to 1914, inclusive, with the degree of M. D. Then the clinical years were discontinued. It was operated as a two year school till 1918, when it was closed.

The Davidson School of Medicine was organized at Davidson in 1887 as a preparatory school, granting no degrees until it became the North Carolina Medical College in 1893. It moved to Charlotte in 1907. In 1914 it merged with the Medical College of Virginia, continuing a nominal existence only long enough thereafter to grant degrees to its three remaining classes. Of special note on its faculty was Dr. John Peter Monroe, professor of medicine. I heard him tell of examining a man for insomnia in the latter's home. The man's wife talked incessantly, so he left a prescription for bromides. The wife asked how she was to give it to her husband. Dr. Munroe said, "Oh, don't give it to *him*, Take it yourself!" A former president of our State Medical Society, Dr. Munroe was interested in it till his death. In his last years, aged and infirm, he would come into the meetings with a cane in one hand and with his other arm resting on that of the white-haired Dr. A. J. Crowell, founder of the Crowell Urological Clinic in Charlotte.

Another high-ranking two year school was founded in 1902 at Wake Forest. It continued thus until generously endowed by the Gray family of Winston-Salem, when it moved to that city in 1941, becoming the four year Bowman Gray School of Medicine of Wake Forest College. It is a real stimulus in the populous "triangle city" area of the state, containing, within a few miles of one another, the cities of Winston-Salem, Greens-

boro, and High Point. Its influence has spread, of course, far beyond this area.

Really modern clinical education in North Carolina was started by the signing of his great indenture by Mr. James B. Duke. Both Duke University as a whole and its School of Medicine occupy a very high place in the educational system of the world. Annual symposiums, clinics, and lectures, provided by Duke, Watts Hospital and other medical centers, are also contributing to the development of North Carolina medicine.

Now comes the great new four year school of our state university, with new plans for far-flung service to our people. Its associated School of Dentistry, the first in the state, will also be of signal aid to medical progress.

State Board of Medical Examiners

Our State Board of Medical Examiners was established in 1859, and has functioned ever since. Personally, I should like to see all state board *examinations* in medicine abolished, requiring all practitioners to take the National Board examinations, on the ground that anyone fit to practice medicine in one state is fit to practice anywhere the United States flag flies. I would, however, retain the various state boards as boards of licensure, to license diplomates of the National Board without examination, with full power, as they have now, to revoke the license of any physician for due cause. Such power is exerted better on a state level than a national level. All revocations should be made known to all the state boards in the country.

Conclusion

With our three great medical schools co-operating—North Carolina, Duke and Bowman Gray—the evolution of medicine in North Carolina should progress to undreamed of achievements. From a world-wide standpoint we may say with Arthur Hugh Clough:

For while the tired waves, vainly breaking,
Seem here no painful inch to gain,
Far back, through creeks and inlets making,
Comes silent, flooding in, the main.
And not by eastern windows only,
When daylight comes, comes in the light,
In front the sun climbs slow, how slowly,
But westward, look, the land is bright!

North Carolina medicine has come of age in the western world.

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Rewards of Practice: The chief reward, in my experience, is the clinical work—diagnosis, prognosis, and treatment. It is exceedingly difficult, but not impossibly so, always new, entirely fascinating. There is no danger whatever of the art's dwindling to an exact science. Patients, whether they know it or not, continue to need us badly; neither hygienists nor teams of specialists can take our place. Intrinsically general practice, even if single-handed, is not outmoded—granted that is, a proper command of ancillary, specialized and institutional resources . . . The other half of the Hippocratic art—winning and keeping the patient's confidence, subduing, influencing, or outflanking his circumstances, inducing him and his friends to cooperate for his good—is even more difficult than the clinical part.—Batten, L. W.: *Private Practice*, *Brit M. J.* 2:437 (Aug. 25) 1951.

Unsuspected diseases are discovered surprisingly where they were not anticipated to exist. The influences of environmental and circumstantial contributors to ill health of all kinds are only beginning to be given significance. Vast fields, involving living beings other than man, as reservoirs, as vectors, and as susceptibles, have yet to be explored. The complexities of enzyme systems and hormone systems are rapidly assuming absorbing interest.—Murray, E. G. D.: *The Emergency for Research in Unexplored Fields of Public Health*, *Canad. M.A.J.* 66:276 (March) 1952.

ACCIDENTAL ADMINISTRATION OF DICYCLOMINE (BENTYL*) HYDROCHLORIDE IN OVERDOSAGE

Report of a Case with Recovery

A. R. PITTMAN, JR., M.D.

LUMBERTON

Because of its therapeutic effect and low toxicity, there is increasing use of Bentyl as a replacement for belladonna or atropine in the treatment of symptoms thought to result from gastrointestinal hypermotility⁽¹⁻¹⁰⁾. In the first 1,272 reported cases there has been no record of any mydriatic effect, even though in many instances several times the usual clinical dose has been given⁽¹¹⁾.

In the present instance, a 2½ year old girl obtained accidental access to a bottle of Bentyl Syrup prescribed for her mother, and drank the equivalent of nine times the usual adult dose.

Report of Case

The patient, a child 2½ years of age, drank 1½ ounces (90 mg.) of Bentyl Syrup. She was immediately brought in for examination and was seen in about 20 minutes. At that time there was slight dilation of both pupils. The pulse was good and the heart was normal. The child was observed for about one hour and seemed to be feeling fine. She continued to feel well, pulse remained strong and regular, and there was no nausea or vomiting. The pupillary dilatation remained but did not seem to cause her any trouble.

Later in the day the child returned home and seemed to feel better than normal. She was extremely active, behaving as though she might be slightly intoxicated, and was "meaner than ever," in the words of her mother. She ate a good supper. When bedtime came the child was not sleepy, but was thirsty and required water several times during the night. The following morning she seemed perfectly normal—and the physical examination was entirely negative.

Comment

Acute toxicity is determined in experimental animals before new drugs are administered clinically. Determination of toxicity data in human subjects must await acciden-

tal overdosage or attempts at suicide or homicide. The present case is the first reported as confirming the animal reports that Bentyl is a drug of low toxicity⁽¹⁾. No antidote was given or needed.

Summary

A non-fatal case of accidental overdosage with Bentyl is reported. There were remarkably few side effects, the most noticeable being a mild degree of central nervous system stimulation and some drying of the mouth.

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Research. I suppose everyone will admit that research is necessary, but I think it is important to be sure of what we mean by research. Few will disagree with the definition that it is the accumulation of accurate knowledge by investigation, though some pedants may insist that the investigation must be by verifiable experiment, which is no more than a special case. So far we are on safe ground and like all forms of security it is tediously dull. It used to be thought that research ability was gifted to the select few who were only fit to become one of those queer fish known as Professors. Those were the happy days, before the politicians realized that there is power in science and its applications, since when scientists have to a large and disquieting measure become enslaved to political expediency.—Murray, E. G. D.: *The Emergency for Research in Unexplored Fields of Public Health*, *Canad. M.A.J.* 66:275 (March) 1952.

Pitfalls in medical practice. I asked a number of my colleagues around the hospital lunch table what, in their opinion, were the commonest mistakes in medical practice. Interestingly enough, the most frequent single reply was that the commonest error lay in the taking of a poor history.—Copping, G. A.: *Common Pitfalls in Medical Practice*, *Canad. M.A.J.* 66:329 (April) 1952.

*Bentyl Hydrochloride is the trademark of The Wm. S. Merrell Company, Cincinnati 15, Ohio, for its brand of dicyclomine hydrochloride (diethylaminocarbethoxydicyclohexyl hydrochloride).

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

SEPTEMBER, 1952

REGIONAL MEETING OF THE PRESIDENT'S COMMISSION

As part of the activities of the President's
Commission on the Health Needs of the Na-
tion, eight regional meetings, open to the
public, have been held in the United States.
One of these was held in Raleigh on August
25. It began at 9 A.M., recessed an hour for
lunch, and adjourned a few minutes past 5
P.M. until 7:30, when a third session lasting
until 9:30 P.M. was held. Dr. Clarence Poe,
editor of the *Progressive Farmer*, arranged
the program, which was devoted to the sub-
ject:

How Can We Meet Three Needs—

1. Adequate Medical Care
2. Adequate Hospital Care
3. Adequate Insurance and Financing

For Three Groups of People—

1. Our General Rural Population
2. Our Tenant Farmer and Indigent
Rural Groups
3. Our Negro Population

The morning session was divided into
three parts: "What are Present Conditions
Regarding Medical, Hospital, and Financing
Needs of Our Rural Groups"; "How Can We
Improve Hospital, Medical and Health Ser-
vice for Rural People?"; and "How Can We
Improve Hospital and Medical Care for
Negro People?"

The afternoon session was divided into
two parts: "How Can We Get Adequate Hos-
pital and Medical Insurance?" and "How Can
We Best Meet the Needs of Indigent and
Medical Indigent in Rural Areas?"

The evening session was devoted to a dis-
cussion of better mental health, and the last
30 minutes to final observations from dis-
tinguished guests.

Our State Medical Society was well rep-
resented. Dr. Fred Hubbard presided over
the first morning discussion; President J.
Street Brewer's "General Statement of the
Situation" is the basis for the President's
Message this month; Dr. W. C. Davison of
Duke spoke on "The Need for More Rural
Doctors," and Dr. C. C. Carpenter of Bow-
man Gray discussed briefly the problem of
medical education. Dr. George F. Bond spoke
on "What the Small Hospital Can Do"; Dr.
B. E. Washburn on "The Rural Community
Clinic"; Dr. R. E. Earp on "Helping the
Negro Tenant Family"; and Dr. J. Norris
Smith told of the insurance program, spon-
sored by the Medical Society of the State
of North Carolina, for low income families.

At the evening session, Dr. Laurant Forisz
discussed the problem of the alcoholic; Dr.
George Ham, "Better Training of Psychia-
trists and Psychiatric Personnel"; Dr. J. W.
Murdoch, "Voluntary Admissions and Treat-
ment"; and Drs. David Young and Wingate
Johnson, "The Growing Problem of Senility:
What Can We Do?"

The program of the Raleigh regional meet-
ing was, as can be seen, quite comprehensive
—but one got the impression that it had
been hastily gotten together and that it was
too crowded to allow time for free discussion
from the audience. For example, the second
part of the morning session was timed from
10:30 to 11:45, including 15 minutes for dis-
cussion. Each speaker was allotted 10

minutes, and 10 speakers were listed for this period. The problem was solved by the failure to appear of three of the five speakers on the third part of the morning program, and by the omission of the discussion.

A CIO representative from Georgia, although not listed on the program, asked to be recognized and spoke at some length in favor of a national health insurance scheme similar to Great Britain's. He was the only outspoken champion of Oscar Ewing's pet scheme, but it was evident that the reporters present were avidly devouring his words. His statements were challenged by two of the medical men present.

It was recognized by many speakers that the problem of medical care for rural communities was a real one, but that it was not so serious as appeared on the surface. Good roads have made it possible for the doctor and patient to get together much more easily than in time past. The multiplication of hospital facilities in smaller communities will attract doctors to them. There was some difference of opinion as to the need for greatly increasing the output of doctors in the state. Dean Carpenter expressed the opinion that not more than 10 or 15 per cent of applicants declined for admission to the medical schools of the state were really qualified to study medicine. He did not recall that any North Carolina boy who was really qualified had been rejected at Bowman Gray. The majority of Bowman Gray graduates who are not in service or continuing their training in hospitals are in rural practice.

One of the most telling presentations was by Dr. Earp, on "Helping the Negro Tenant Family." He stated that the death rate among rural Negroes in the South was 14 per 1,000; among Negro industrial workers in the North, 16.6.

One incident of the meeting which was, unfortunately, given undue publicity, was a telegram from the Old North State Medical Society protesting against being left out of the program. Before the telegram came, Dr. Poe had explained that he had invited the president of the Old North State Society to speak, and expressed regret that he had been unable to get in touch with him or with another representative.

It is impossible, of course, to tell just how much good is accomplished by such a meeting as this. President Truman has recently admitted that he knows more about politics

than any man in the United States, and the appointment of this commission is evidence that he has some right to this claim. It has taken him off the hook by shelving until after the election the very controversial issue of compulsory health insurance. Those who know Dr. Magnuson, the chairman of the commission, know that he is honest and is an excellent orthopedic surgeon, but are not too sure of the soundness of his judgment in medical economics. Only five of the 15 members of the commission—including Dr. Magnuson—are M.D.'s; only one of these is in private practice. We in North Carolina have great confidence in Dr. Clarence Poe, but many if not most of the other commission members are known to hold views considerably to the left of the center.

The impression made on most medical men who were present was that the Raleigh meeting furnished little if any aid to those who would have the commission's report used as propaganda for a national health insurance scheme controlled by the federal government.

A LETTER TO A CONGRESSMAN

Dr. George S. Benson, president of Harding College, Searcy, Arkansas, deserves the thanks of the American people for the unremitting fight he is carrying on against the socialization of our country. Part of his effort is the Harding College Letter: "A monthly letter of thought and opinion about America's problems." The June issue of this publication contains a "Letter to my Congressman," which might well be used as a pattern for taxpayers all over the United States. It is short enough to be reproduced in full:

* * *

"Dear Congressman:

"An Associated Press dispatch in my newspaper reports that the House of Representatives has 'voted tax relief to all members of Congress.' As one of your constituents, I am perfectly willing to approve your action if you will vote exactly the same tax relief to all of us back home. Otherwise you and your colleagues in Congress are being unfair; you are setting yourselves up as a 'vested interest,' voting yourselves special tax exemptions not applicable to other citizens.

"Such action is not only unfair; it is dangerous. It sets you apart from the people you represent. By escaping taxes that you have voted to levy on 'we the people,' you escape

the financial problems that are a constantly expanding part of our lives as government grows bigger and bigger. You lose the common touch. You cease to be a true representative of the people. You become a special class. You shirk carrying your part, a citizen's part of the tax load. Thus, to you, taxes lose their true nature, their paralyzing effect, their inherent danger.

"The AP dispatch says that by an 'unrecorded' vote the House has voted its members and the members of the Senate permission to deduct all 'living expenses' incurred in Washington when you maké out your income tax return. 'Unrecorded' means that no Congressman stood up to be counted publicly for or against the 'Tax-Relief-for-Congressmen-Only' measure—doesn't it?

"We citizens know what you're up against. It's tough trying to live in Washington on \$15,000 a year, with taxes what they are and with inflation sapping the purchasing power of the dollar. But if you think living in Washington on \$15,000 is tough, you ought to come home and find out what it's like here on \$4,000, and \$5,000, and \$6,000—before taxes! The statisticians report that Federal taxes alone now are taking \$477 on the average each year from every man, woman and child. For the family of four, it averages \$1,908.

"Another way to put it is that total government taxes now use up 32 per cent of the total annual income of all the people and all the companies in America!

"Yes, Mr. Congressman, it is high time to do something about tax relief. But with your 'Tax-Relief-for-Congressmen-Only' measure you're not shooting square. Nor are you facing up honorably to a bad situation. Your trouble is that Federal taxes are too heavy. You're admitting that. You're fixing things so these crippling taxes won't cripple you. But we citizens are in trouble too. What about us?

"This letter is being mailed to my Senators too. They are hereby asked to reject the 'Tax-Relief-for-Congressmen-Only' proposition. Together the House and the Senate can cut your taxes and ours too by drastically cutting down the size of the Federal government and by exposing and kicking out the grafters and the big spenders. All the people I know will back you to the hilt in this.

"P.S. The time has come for sincere, honest Americans to stand up and be counted on all votes. I write with deep concern for my country's future."

CHIROPRACTIC

The *New York State Journal of Medicine* is rightly concerned over increasing pressure to license chiropractors in the state of New York. As in Houston and other Texas cities, the practitioners of this cult are treating patients without license, "but desire licensure so that sanction by the State of their laying on of hands may cloak with apparent respectability procedures devoid of demonstrable scientific justification, performed by persons lacking demonstrable diagnostic ability, practiced upon other persons who lack criteria for discrimination between fact and fancy."

The *New York State Journal of Medicine* asks, "what is chiropractic and what are chiropractors?" and proceeds to answer its rhetorical question so well that the answer is quoted in part for the benefit of our readers who may be asked the same question by their patients.

"If one sticks to facts, one must answer that chiropractic is the fanciful creation of one B. J. Palmer of Davenport, Iowa, who asserts that 'adjusting' the human spine cures most human ailments. Chiropractors are persons who for one or another reason believe or seem to believe this assertion and who manipulate the spines of gullible persons for profit . . .

"Chiropractic alleges that all disease is the result of or is related to nerve interference . . . Why do we say with regard to chiropractors that they 'assert' all diseases to be the result of or related to nerve interference? Simply because there is no valid proof that this is so. There are but two alternatives: it is so or it is not so. If it is so, then all the work, carefully conducted and scientifically guarded, of Virchow, Pasteur, Banting and Best, Graves, Huntington, Paget, and Cushing, to name but a few investigators at random, must be thrown out of the window. This is so obviously absurd as to need no further comment.

"If it is not so, then any recognition of an absurdity of no proved scientific worth by statute would seem to be so similar to fraud as to be indistinguishable and to be an official validation of an untenable thesis . . .

"It is true that some symptoms are observed when conduction of nerve trunks is suppressed. The suppression may be caused by mechanical, circulatory, or other means. There is a difference between some symptoms and 'all disease.'

"To be able to diagnose what disease a person has from the history and the symptoms he presents requires the highest skill and the longest training of any of the professions. Even so, and with the help of all the accessory sciences and arts he can utilize, the physician is not always right, nor, in all probability, can he ever be.

"If, as has been proposed¹⁾, the principal training of chiropractors need be only that of some classroom training in the chiropractic thesis and a total of four thousand hours of resident training and practical experience in chiropractic, it would appear that the legislature is being asked to legalize the proposition that: zero \times 4,000 equals 4,000 or something, where zero represents the scientific content of the thesis, and 4,000 represents the number of hours. Even a bookmaker would laugh at that one."

1. Seelye-Milner Bill (1952) Section 650 . . . 4.

Clinicopathologic Conference

DUKE HOSPITAL

JAMES P. HENDRIX, M.D., *Editor*

Presentation of Case

DR. EUGENE A. STEAD, JR.: This 62 year old white married woman had been quite well until six weeks before her death. At that time she began to complain of aching pains in her legs and back, and progressive weakness.

Four weeks before death the pain and weakness in her legs were so severe that she was forced to remain in bed. She became unable to move her hips and knees, but could move her toes. Similar muscle pain developed in her arms, and it is thought that she was febrile. Her physician was called for the first time, and made a diagnosis of malaria. He prescribed medications which were thought to consist of quinine, Atabrine, and sulfadiazine.

One week later, because her condition was becoming worse, she was admitted to a hospital near her home. She remained there until the day before death, when she was transferred to Duke Hospital. During her three weeks in the hospital she was anorexic and had progressive mental confusion with episodes of hallucinations. Her weakness increased. During the last week or so of life, according to the family, she complained frequently of "catchy" substernal or chest pain. For several days before death she seemed to be short of breath when lying flat and preferred to stay propped up in bed.

Physical examination on admission to Duke Hospital revealed an acutely ill, disoriented woman who was sweating profusely. The temperature was 38 C. (100.4 F.), the pulse 62, respiration 20, blood pressure 136 systolic, 72 diastolic. The left pupil was larger than the right, but both reacted promptly to light. The tongue was red and showed some papillary atrophy. The neck veins were distended. The anteroposterior diameter of the chest was increased, and many moist rales were heard at both bases. The heart was enlarged almost to the anterior axillary line. The rhythm was regular at the rate of 62 per minute, but when the patient was turned on her side, a regular tachycardia (140 per minute) appeared. This ceased abruptly when the patient was again placed on her back. The heart sounds were of poor quality; the second pulmonic sound was

accentuated, and a grade 3 apical systolic murmur was described. There was some evidence of generalized abdominal tenderness, and the liver was palpated 3 cm. below the right costal margin. Some ascites was present, and there was moderate edema of the ankles.

Neurological examination revealed extreme wasting of the lower extremities and marked weakness. The deep tendon reflexes were diminished in the arms and absent in the legs.

Laboratory findings: A blood count made on admission to her local hospital revealed 4,210,000 red blood cells, hemoglobin 65 per cent, and 8,800 white blood cells, with 87 per cent polymorphonuclears and 9 per cent lymphocytes; no other cells were recorded. Four days later the white cell count was 7,600, with 45 per cent polymorphonuclears, 41 per cent lymphocytes, 1 per cent basophils, 1 per cent monocytes, and 12 per cent eosinophils. Five days before death, the white cell count was 12,600, with 77 per cent segmented polymorphonuclears, 6 per cent stab forms, 1 per cent juveniles, 15 per cent lymphocytes, and 1 per cent monocytes. Urinalysis on admission showed a specific gravity of 1.014, a trace of protein, 15-20 white blood cells and 1-2 red blood cells per high power field. A gastric analysis was normal. The nonprotein nitrogen was 45 gm. per 100 cc. of blood. The serum proteins were 6.7 Gm. per 100 cc., with 2.3 Gm. of albumin and 4.4 Gm. of globulin. The blood sugar was 93 mg. per 100 cc., serum chloride 496 mg. per 100 cc., and blood cholesterol 77 mg. per 100 cc. Spinal fluid examination revealed 3 white blood cells per cubic millimeter and 21 mg. of protein per 100 cc. Blood and stool cultures were negative. One week before death, agglutinations for paratyphoid A and B, Brucella, and Proteus OX19 were negative, but typhoid O was positive in a dilution of 1:640, and typhoid H was positive in a dilution of 1:80.

Laboratory work at Duke Hospital revealed a hemoglobin of 11.1 Gm. (72 per cent), a hematocrit of 31 vols. per cent, and 11,000 white blood cells, with 83 per cent segmented polymorphonuclears, 6 per cent stab forms, 1 per cent eosinophils, and 11 per cent lymphocytes. Serologic tests for syphilis were negative.

Course in the hospital: The patient was critically ill at the time of admission, and died 12 hours after coming into the hospital.

Clinical Discussion

DR. EUGENE A. STEAD, JR.: Our problem is to think of a disease that could be fatal to a 62 year old woman in six weeks. The disease must be a diffuse one, affecting the spinal cord and brain (to account for the neurologic and mental changes), the heart (cardiac enlargement and arrhythmia), probably the lungs (precordial pain and dyspnea), and the kidneys (albuminuria and hematuria). It must cause a moderate inflammatory response, to account for the fever and leukocytosis and the elevated serum globulin.

The diffuseness of the illness means that blood vessels must be widely involved. We immediately think of subacute bacterial endocarditis. Against this diagnosis is the absence of splenomegaly and petechiae, and the negative blood cultures. All of the findings could be explained on the basis of small emboli, however, and this diagnosis would be my first choice.

The patient had sulfadiazine early in her illness. If she had acquired a sensitivity to this drug, her future course might be explained by an inflammatory arteritis of the small vessels. One blood count showed 12 per cent eosinophils, but these were not noted on the other two counts. Any disease of the small vessels, such as primary amyloidosis, could be considered. She died more quickly than one would expect with primary amyloidosis, however.

Primary myocarditis with endocardial involvement and widespread embolization is possible. A silent myocardial infarct with embolization is conceivable.

Diffuse carcinomatosis with widespread metastases cannot be ruled out.

In summary, this is an inflammatory disease involving blood vessels. I am not certain of the etiology, but I will list subacute bacterial endocarditis as the most likely diagnosis.

Now I would like to ask other members of the staff for their opinions on this puzzling case. I will begin by asking Dr. Nicholson if this patient might have died of arsenic poisoning. In the past he has suggested this diagnosis in other cases where the nature of the disease was obscure.

DR. W. M. NICHOLSON: My only answer is that anything is possible in arsenic poisoning. It is important to remember that this type of poisoning involves practically all of the systems of the body, particularly the

gastrointestinal system and the central nervous system. Likewise, it frequently causes symptoms and signs of congestive failure. As to the difficulties of administration, we must remember that it was our unhappy experience to have it administered to a patient in this hospital by a member of his family.

I might add that I do not think this patient had arsenic poisoning.

DR. JEROME S. HARRIS: I would like to suggest the diagnosis of trichinosis. The story of muscle pains, weakness, fever, encephalopathy, myocardial involvement, and eosinophilia strongly suggests this possibility. The disappearance of the eosinophilia later in the disease is not incompatible with this diagnosis, since it is known to occur when complications develop in trichinosis.

DR. SAMUEL MARTIN: I would agree with Dr. Harris. The pattern of the disease suggested trichinosis.

DR. JAMES P. HENDRIX: The diagnosis of masked hyperthyroidism might be considered. It could account for the myopathy, the heart disease, the liver involvement, and the low serum cholesterol which was reported.

Clinical Diagnoses

Dr. Stead's diagnosis: Inflammatory disease of the blood vessels, probably due to subacute bacterial endocarditis, with multiple emboli.

Dr. Harris' diagnosis: Trichinosis.

Dr. Hendrix's diagnosis: Masked hyperthyroidism

Discussion of Pathologic Findings

DR. JOSHUA L. EDWARDS: The gross anatomic findings in this case at the time of autopsy were disappointing and by no means commensurate with the clinical signs and symptoms. A recent, unorganized thrombus was present in the left popliteal vein, from which there had occurred showers of pulmonary emboli during the last two or three days of the patient's life, and which terminally had produced massive embolization of both pulmonary arteries. There were multiple small, quite recent infarcts. A single infarct in the left lower lobe, 6 cm. in diameter, was approximately three weeks of age, and in all probability was responsible for the pain in the chest three weeks prior to death.

The right side of the heart was markedly dilated as a result of the occlusion of the pul-

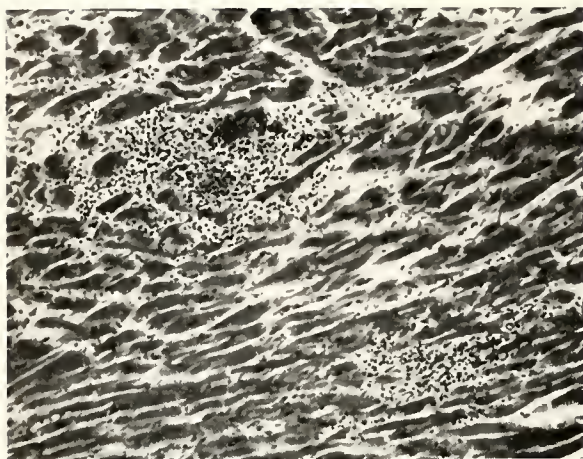


Fig. 1. Foci of inflammation in the myocardium.

monary artery. The minor, incidental gross alterations demonstrated in the brain could not account for the severe symptoms related to the central nervous system.

Microscopic studies, however, revealed a severe, widespread myocarditis characterized by foci of macrophages, lymphocytes, plasma cells and a few polymorphonuclear leukocytes, distributed at random throughout the myocardium. Associated with these inflammatory lesions were early degenerative changes of the myocardial fibers, and in some areas necrosis with and without organization (fig. 1).

A widespread focal meningo-encephalitis, characterized by perivascular collections of mononuclear inflammatory cells, were present. Necrotic and degenerative changes were frequently found in the adjacent parenchyma and the involved blood vessel.

The problem of correlating the myocarditis, meningo-encephalitis and thrombo-embolic phenomena was solved by microscopic study of the skeletal muscles. Numerous sections of voluntary muscle removed from various regions all showed extensive infestation by larvae of the roundworm, *Trichinella spiralis* (fig. 2). The fact that most of these were in the early stage of encystment suggests that the patient had ingested a single dose of the parasites approximately eight to ten weeks prior to death. A severe inflammatory reaction to these larvae was present, and marked alteration of the muscle fibers had occurred. No calcification could definitely be demonstrated.

Only rarely nowadays does one encounter instances of such a heavy infestation with



Fig. 2. Larvae encysted in the skeletal muscle, associated with inflammation and focal degeneration of muscle fibers.

Trichinella spiralis that clinical symptoms are manifest. In fatal cases myocarditis is always present, and usually encephalitis as well. That death is due to these lesions is of tremendous therapeutic importance. The fact that larvae are present in the heart and brain for only a transient period raises the important question as to what relationship exists between these lesions and the parasite. This is to some extent explained by the unique sequence of events concerned in the host-parasite relationship.

The parasite is acquired by man as the larva encysted in the skeletal muscle of the pig, ingested as incompletely cooked pork. The larvae immediately anchor themselves to the mucosa of the small intestine and develop to sexual maturity within 40 hours. After copulation, the male dies and the female burrows into the mucosa and ultimately deposits her numerous precocious larvae in the lymphatic channels. After reaching the blood stream, they are circulated to all tissues, and in this stage have been found in various viscera, including the heart and brain, and in all body fluids, including the spinal fluid.

For unknown reasons they select only skeletal muscles as the site of ultimate encystment. Inflammatory reactions of significant proportions are provoked only in cardiac and skeletal muscle and in the central nervous system.

Thus the clinical picture of muscle pain and weakness, the symptoms related to the central nervous system, and the cardiac manifestations which set the stage for thrombo-embolism are readily explained by the ana-

tomic findings and are completely consistent with fulminating trichinosis. Not completely solved, however, are certain problems about the factors involved in the production of an intense inflammatory reaction in the heart and brain. These factors are of immense practical importance with respect to possibilities of therapy.

DR. MARTIN: Clinically there are many aspects of this illness which resemble serum sickness, and it probably is this type of allergic reaction which accounts for the inflammatory lesions just mentioned by Dr. Edwards. Immunologically, patients with trichinosis give an immediate response to the skin test antigen. The focal reactions seen in areas where no encysted trichinae are present call to mind the fixed tissue reactions observed in many of the allergic responses, such as fixed drug reactions and the focal reactions which at times accompany testing with tuberculin.

DR. HENDRIX: Dr. Martin's thesis that many of the symptoms of trichinosis are due to a "hypersensitivity" or serum sickness type of reaction is strengthened by recent reports of successful symptomatic treatment of the disease with ACTH and cortisone⁽¹⁾.

DR. NICHOLSON: Recently it was my privilege to see in consultation a patient who had proven trichinosis. Active treatment with ACTH has been followed by remarkable improvement. Sufficient time has not yet elapsed to draw definite conclusions concerning this case, but the result of therapy appears to be in agreement with the reports mentioned.

DR. STEAD: We have then a disease which produced widespread lesions of the type generally seen with disease of the small blood vessels. The etiology in this case, however, was unexpected. In view of the reports which have been mentioned here concerning the successful treatment of trichinosis, early diagnosis of this disease now is of greater importance than ever before.

Anatomic Diagnosis

Trichinella spiralis infestation with massive muscular encystment, chronic diffuse myositis, diffuse chronic focal myocarditis, chronic supra-renalitis, chronic meningo-encephalitis. Cardiac dilatation, chronic passive congestion of viscera. Peripheral edema, pleural effusion, thrombophlebitis left popliteal vein. Sublethal pulmonary embolism. Massive right ventricular and auricular dilatation. Infarction lower lobe right lung.

Right fibrinous pleurisy. Massive fatal pulmonary embolism. Scarred renal cortex. Solitary cyst, congenital, of kidney. Cholecystitis and cholelithiasis. Polyp of endometrium. Lipoid depletion of adrenal.

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Committees and Organizations

COMMITTEE ON HOME TOWN MEDICAL CARE OF VETERANS

Statement with Regard to the History and Authority of the Veterans Administration Relating to Hospitalization of Veterans Requiring Treatment for Conditions Not Attributable to Military or Naval Service.

In recent months, numerous inquiries have been received in the office of the Chief Medical Director concerning the authority of the Veterans Administration to hospitalize veterans for conditions not attributable to military or naval service, where such veterans are potentially entitled to treatment from private sources, payment of the expense thereof being covered by an insurance policy, plan or other agreement which provides such benefits.

On March 4, 1923, within five years following the termination of World War I, Congress, through an Act of that date, authorized hospitalization of veterans of the Spanish American War, Philippine Insurrection, and the Boxer Rebellion, suffering from specifically described nonservice-connected disabilities. As of June 7, 1924, the Act of that date, known as the World War Veterans Act, provided that veterans of the War with Spain, Philippine Insurrection, Boxer Rebellion and World War I, suffering from specifically described disabilities, were entitled to hospitalization in Veterans Bureau facilities and that veterans of any war, military occupation or military expedition after 1897 were also entitled, when existing Government facilities permit, to hospital treatment when the veteran was *unable to defray the cost of such care himself*. Prior to passage of these Acts, only veterans suffering from disabilities determined to be service-connected were provided hospitalization in the

26,000 beds then available to the Federal Government.

In 1930, Congress created the Veterans Administration, consolidating the Veterans Bureau, the Bureau of Pensions, and the National Homes for Disabled Volunteer Soldiers. Since that time, the Veterans Administration has been charged by statute with the responsibilities in connection with veteran's medical care.

In 1933, during the continuance of an economic depression in this country, the authority to hospitalize nonservice-connected cases was restricted to veterans who had served for a stated period and were suffering with permanent disabilities or tuberculosis or neuropsychiatric diseases which deprived them of an opportunity to make a living and who had no adequate means of support. However, within a few months, on the basis of recommendations made by various groups and the veterans' organizations, this provision was liberalized.

Hospitalization for war veterans suffering from nonservice-connected disabilities is provided under Public Law 312, Seventy-fourth Congress (38USC706), reading as follows:

"In addition to the pensions provided in this title the Administrator of Veterans' Affairs is hereby authorized under such limitations as he may prescribe, and within the limits of existing Veterans Administration facilities, to furnish to men discharged from the Army, Navy, Marine Corps, or Coast Guard for disabilities incurred in line of duty or to those in receipt of pension for service-connected disability, and to veterans of any war,—where they are suffering with permanent disabilities, tuberculosis, or neuropsychiatric ailments and medical and hospital treatment for diseases or injuries; Provided, that any veteran of any war who was not dishonorably discharged, suffering from disability, disease, or defect, who is in need of hospitalization or domiciliary care and is unable to defray the necessary expenses therefor,—shall be furnished necessary hospitalization or domiciliary care—in any Veterans Administration facility, within the limitations existing in such facilities, irrespective of whether the disability, disease, or defect was due to service. The statement under oath of the applicant on such form as may be prescribed by the Administrator of Veterans' Affairs shall be accepted as sufficient evidence of inability to defray necessary expenses."

Pursuant to this authority, Veterans Administration Regulations 6047 (d) (1) has been promulgated authorizing domiciliary or hospital care for nonservice-connected disabilities only for otherwise eligible veteran " . . . who swear that they are unable to defray the expense of hospitalization or domiciliary care." Veterans Administration Regulation 6048 gives definitions applicable

in determining eligibility for hospital treatment or domiciliary care, and in subparagraph (d) (2) said regulation, as provided in the basic statute, prescribes: "The affidavit of the applicant on VA Form 10-P-10 that he is unable to defray the expenses of hospitalization or domiciliary care—will constitute sufficient warrant to furnish hospitalization or domiciliary care (including Government transportation to cover transportation to the facility)."

In view of this requirement, the Veterans Administration must furnish hospitalization if a bed is available, to otherwise eligible veterans who need it without regard to service-connection who affirm they are unable to defray its expense. The veteran's statement under oath of inability to defray the expense of hospitalization is not synonymous with saying that he is wholly without assets. It is true that many persons with some means, some of which means may consist of a chose in action such as an insurance policy, against the insurer, can and do truthfully state that they are unable to pay for the required hospital care. In the majority of cases this may be justified because of the fact that the hospital bill for service rendered is several times the maximum liability of the insurer. The fact that a veteran may have some assets, including an insurance contract for partial payment of the cost of treatment, does not in and of itself indicate financial ability to defray the cost of hospitalization. Further, the unambiguous language included in the law that the "*statement under oath . . . shall be accepted as sufficient evidence of inability to defray expenses*," precludes the establishment by the Veterans Administration of a means test as to the ability of the veteran to pay for hospitalization so long as he complies with the foregoing requirements. Notwithstanding the unambiguous intent of the underlined portion of the statute, the question is frequently raised why the Veterans Administration accepts the applicant's statement without any investigation. If it could be determined that the veteran's statement in this connection was fraudulent or false, the individual can be prosecuted. Unfortunately, however, the statement required by the statute as to the ability to pay is only a statement of opinion. Like any opinion, prosecution will be unsuccessful unless it can be proven *beyond a reasonable doubt* that in fact the defendant knew that his state-

ment at the time of making the oath was false and fraudulent. You will recognize the impossibility of securing such proof in most cases. For this reason, the Veterans Administration, in view of the clear language of the Congress is willing, in the majority of cases, to accept the veteran's statement under oath.

In addition to the foregoing, the Chief Medical Director is frequently requested to explain the authority of the Veterans Administration to bill insurance companies, group benefit plans, etc., for hospital treatment furnished their policyholders who are veterans and who were furnished such treatment for a condition not attributable to military or naval service. In connection with this question, attention is invited to Section 6, Title I, Public Act No. 2, Seventy-third Congress, as amended which reads in part as follows:

" . . . The Administrator of Veterans' Affairs is hereby authorized under such limitations as he may prescribe, . . . to furnish . . . to men discharged from the Army, Navy, Marine Corps, or Coast Guard . . . medical or hospital treatment for diseases or injuries . . ."

Under this authorization to prescribe limitations, the regulations of the Veterans Administration were amended to provide that:

"Veterans applying for hospital treatment for a nonservice-connected disability, and who are potentially entitled to other hospital treatment because of membership in a union . . . or group hospitalization plan, etc., . . . will not be furnished hospital treatment without charge therefor, to the extent of such reimbursement. Action will be taken to effect collection from the persons, companies, organizations, etc., . . . in the amounts determined payable under the terms of the applicable insurance policy, plan, agreement or other undertaking."

A review of the statute relative to the authority of the Administrator to prescribe limitations indicates that Congress was cognizant of the impossibility of laying down by statute all the detailed procedures required in connection with admission to hospitals. Further, it also indicates that it not only did calculate but anticipated and expected some reasonable restrictions and limitations should be prescribed by the Administrator. The regulations cited in part above reflect those limitations which the law authorizes. For example, the language reading "Action will be taken to effect collection from . . . companies . . . in the amounts determined payable under the terms of the applicable insurance policy, etc.," is intended to prescribe that under certain conditions some assets (not all assets, only those which do not inure to the personal benefit of the

veteran) will be subjected to the payment of the hospital bill.

The intent of the Congress, of course, must be deduced from the statutory language. However, we have no doubt that even in these days of large Government expenditures it is doubtful that the Congress, or other persons interested with the enactment of this legislation, contemplated an inhibition against some form of collections that would in some instances mitigate the financial burden imposed by the operation of the Veterans Administration hospital program for these nonservice-connected cases.

For these and other reasons hospitalization for otherwise eligible veterans for nonservice-connected conditions in Veterans Administration hospitals, who are potentially entitled to reimbursement for payment of the expenses therefor, was made contingent upon the execution of an assignment to the Veterans Administration of such rights to reimbursement. This policy was also adopted to insure, insofar as possible, that beds would be available to those applicants who, because of their financial condition, have no other means of securing hospital treatment for injuries or diseases not attributable to military or naval service. The policy of assuring the availability of beds for such applicants is also grounded upon the premise that it is inequitable to expect the taxpayers of the United States to bear the expense of hospitalization of one who carried insurance against such a contingency arising and thereby relieve the insurer of the responsibility of meeting its contractual obligations. Further, it would be improper for an agency of the Federal Government not to attempt to collect reasonable charges for services rendered on such an assignment, from an insurer who has received from the veteran, a premium predicated on such a contingency arising, thus in effect, providing a form of subsidy to the insurer without statutory authorization.

The office of the Chief Medical Director is always willing and anxious that the role of the Veterans Administration, and in particular the part played by his office, in furnishing medical care and treatment to eligible veterans is clearly understood by all groups. If additional information on this subject is desired by anyone, they should feel free to submit such requests in writing to the Chief Medical Director and every effort will be made to furnish the desired data.

CORRESPONDENCE

To the Editor:

We have again become involved in a hassle with the Veterans Administration over the admission of nonservice - connected, non-emergency, non-indigent cases to Veterans Administration Hospitals. One recent case was brought up by Dr. John T. Lloyd of Louisburg.

I wrote a letter of protest to Dr. Cullison about it, and received a very nice letter from him dated July 29. In that letter he enclosed the regulations which guide admission of such cases to Veterans Administration Hospitals. He suggested that these Directives be published in our Medical Journal for the purpose of clarification of the present set-up.

I am therefore sending you a copy of Dr. Cullison's letter and the "Statement with regard to the History and Authority of the Veterans Administration Relating to Hospitalization of Veterans Requiring Treatment for Conditions not Attributable to Military or Naval Service."

I am requesting that you publish this material in the earliest issue of the NORTH CAROLINA MEDICAL JOURNAL, and please let it be given as a report of the Committee on Home Town Medical Care of Veterans.

Cordially yours,
J. H. McNEILL, M.D., *Chairman*
Committee on Home Town
Medical Care of Veterans

* * *

July 29, 1952

Dr. J. H. McNeill
Chairman, Committee on Home-Town
Medical Care of Veterans
North Wilkesboro, N. C.

Dear Dr. McNeill:

In reply to your letter of July 23, 1952, by which you forwarded a copy of a protest which your Committee received from Dr. John T. Lloyd, Louisburg, N. C., I am enclosing a statement from the Chief Medical Director, Veterans Administration Central Office, Washington, D. C., which explains the authority of the VA to hospitalize veterans for nonservice-connected disabilities.

I feel that the question raised by Dr. John T. Lloyd is of considerable interest to all physicians in the Medical Society and I strongly recommend the possible publication of this statement in the NORTH CAROLINA

MEDICAL JOURNAL. I am enclosing sufficient copies for whatever distribution you wish to make.

I appreciate the fact that the North Carolina Medical Society is on record against the treatment of nonservice-connected disabilities, particularly in non-indigent cases, but as you can see by the enclosure, such authority was provided by statute passed by the Congress of the United States.

Sincerely yours,
R. M. CULLISON, M.D.
Chief Medical Officer

BULLETIN BOARD

PRESIDENT'S MESSAGE

STATEMENT OF THE GENERAL SITUATION

The organized medical profession of the State of North Carolina is happy to take part in this conference. For more than a decade the medical profession of our state, together with other interested groups and public spirited citizens, has made an earnest effort to solve the problem of bringing the high quality medical care, for which North Carolina and America are noted, within the economic reach of all our people.

In November 1944, 15 or 20 of the leading physicians of North Carolina met with The Honorable Frank P. Graham, then president of the University of North Carolina, to discuss the desirability of launching a medical care program tied in with the extension by the University of its Medical School and teaching hospital. Many of this group believed that a local hospital development program might be related to the program envisioned in the extensions at the University. Governor J. M. Broughton reviewed the situation and named the so called Poe Commission. The Medical Society is proud to have had a part in the concept of the great medical care program launched in North Carolina through the efforts of the Poe Commission and culminating in the North Carolina Medical Care Commission, the great hospital construction program, and the enlargement of the University of North Carolina Medical School.

The medical profession has been aware of the economic impact of illness upon the

Read before the Regional Meeting of the President's Commission on the Health Needs of the Nation, Raleigh, North Carolina, August 25, 1952.

people. We are proud that our Medical Society, under the leadership of the late Dr. Issac M. Manning, at one time its president, and with the cooperation of the North Carolina Hospital Association, has created the Hospital Saving Association of North Carolina, which was among the first Blue Cross prepayment plans established in this country.

Progress in Rural Health

Blue Cross, as represented by Hospital Saving Association and the Hospital Care Association, has shown a vital interest in enrolling rural people and is devoting much attention to trial programs in various sections of the state seeking the way toward more complete coverage for the rural farm family of low income. Just now the farm organizations of the state are likewise manifesting an interest in these problems. With their interest and insight, combined with the health professions and voluntary health service agencies, surely we as a people will achieve a sound system of prepayment for major illnesses.

Recognizing that the Blue Cross plan was not a complete answer to the problem of financing medical care, Dr. W. M. Coppridge, then president of the State Society, in May, 1947, appointed a committee under the chairmanship of Dr. V. K. Hart, representing all the various specialties, to devise a prepayment plan to cover medical, surgical, and obstetrical costs for the lower income groups. This committee, after several years' study of various plans over the country, reported its conclusions to the State Medical Society at its annual meeting in May, 1952. The Society, with the Hospital Saving Association of Chapel Hill as the agent, immediately launched this plan, which is popularly known as the "Doctors' Program" of medical, surgical, and obstetrical service benefits to be provided by participating and underwriting physicians for families with incomes up to \$3,600 per year.

During 1947 and 1948 the medical society through its Rural Health Committee, then under the chairmanship of Dr. Fred C. Hubbard, initiated a rural health program to determine basic health needs at the grass roots level.

After a period of manifest interest on the part of doctors in stimulating this activity among people in a few counties, Miss Charlotte Rickman was employed in 1948 as a

health education consultant. Since that time she has helped the Committee on Rural Health to initiate health councils in several counties and has assisted the local citizens in their organization. Miss Rickman has worked in individual communities with whites, Negroes and Indians, learning from the people themselves what their primary health problems are and aiding them to develop answers through their own resources. The response has been encouraging in all areas where the program has been initiated. The success of the activities of the Rural Health Committee was recognized in the recent appointment of Dr. George F. Bond, of our Society, to the Council on Rural Health of the American Medical Association.

A more recent evidence of progress in the field of rural health is the formation of an advisory committee representative of such rural organizations and rural community life in our state as the Grange, Farmers Federation, State Agricultural Extension Service, Home Demonstration Clubs, North Carolina Health Council (of health agencies), Farm Bureau, Rural School Masters, Parent-Teacher Associations, Women of the Farm Bureau, Home Demonstration Department, Agricultural Education, and Home Economics Education.

Personnel, Facilities, and Finance

We recognize that there are gaps in the program of bringing adequate hospital and medical care to our rural people, particularly the tenant farmer and other segments of the very low income group. The distribution of medical care is dependent on three basic factors—personnel, facilities, and finance. Definite progress has been made in the provision of facilities through our hospital building program, with the resultant increase in the number of beds, more efficient hospital plants, and modern equipment with which to carry on the important supportive care essential in medical treatment. Throughout the nation, and particularly in this state, marked progress has been made in expanding and extending the facilities and resources for training medical and ancillary personnel. An increase in the capacity of each medical school located in this state has characterized the past decade, and we may expect an increase in available health personnel, professional and ancillary, through the enlarged Medical School of the University of North Carolina.

We believe that the so called "shortage of doctors" is more fanciful than real and that a better distribution of medical personnel in this state, and in the nation, will go a long way toward meeting the need for doctors in rural communities. To invite a physician to locate in a rural community is not enough. The community must be one which is characterized by good living conditions, wholesome environment, and institutions of basic spiritual goodness, as well as affording economic support. The rural community must be educated to share in the responsibility of bringing these conditions to prevail in the community. It must be educated to use its physician and patronize his service as an essential service of the community. The tendency in many rural communities to make use of the physician only in "foul weather" and for emergencies, while gravitating to the cities for "fair weather" or luxury services, is discouraging young physicians from locating in rural areas and, not infrequently, is driving physicians already placed in rural areas away to specialize and to locate in the city.

Let us remember that the advent of good roads, now becoming a veritable network of pavement in rural North Carolina, enlarges the physician's area of practice, diminishes the time involved in rendering his services, and consequently increases the availability, quality, and quantity of medical care to the rural population. Moreover, modern modes of transportation have shifted the emphasis from travel by the physician to travel by the patient to points where more efficient medical service can be rendered than in the home.

Let us also remember the influence of the modern miracle drugs. Antibiotic therapy shortens illness and consequently the time a physician devotes to a patient, and much more frequently becomes a fairly simple office procedure in lieu of previous prolonged home visits in the care of seriously ill patients.

The problem of financing medical care in rural areas and among low income groups, such as tenant farmers, laborers and unskilled workers, is real, but in our opinion not insurmountable. Rather it is a challenge to us. The low income and low health standards of these people make the adjustment of prepayment insurance coverage, in line with their ability to pay, a difficult one. Their ignorance of and indifference to minimum

health standards and their high accident rate places them in a different actuarial category from the city dweller and the industrially employed.

The long range answer to this state of affairs is better and more thorough health education and the improvement of the economic status of these people. They need insurance at a cost they can afford to pay. The education of landlords, farm bankers, and the time-merchants toward a fuller recognition of their responsibilities and obligation will help to bring these things to the tenant farm family. An allowance for hospital and medical care insurance as these families prepare to secure the "year's run," either in the form of credit or cash from the finances of the landlord, the banker or the time merchant, is an item of essential expense that should be budgeted in the same way as items of food, clothing, fertilizer, or crop insurance. This will constitute an ideal and effective way of cushioning the unexpected shock of catastrophic illness.

Education and Prevention

The experience of the Rural Health Committee of our State Medical Society, is that the emphasis on the health problems of the people vary widely from county to county, indeed from community to community. It is also strikingly evident that the people respond to leadership when stimulated and show eagerness to do the things necessary to raise the health level of the community. Sixty-six per cent of the state's population is rural; therefore, all interested parties should join in a real effort to get rural people, physicians, community workers, and allied groups together for a discussion of North Carolina rural health problems so as to point the direction for future corrective effort. Let us remember that good hospital and medical care is but a part of the answer to the problem of maintaining good health. The acquiring of a standard of good health in any community involves education and preventive measures. For example, though we have been 40 years in the effort, the elimination of the hookworm as a problem is far from being accomplished. The problem cannot be solved until the people are educated to get rid of hookworms through an effective sanitation program and the wearing of shoes. How can we ever eliminate hookworm as long as thousands of our people, by choice, go barefoot from April to October?

The North Carolina State Board of Health is to be complimented on the great educational and preventive program which a series of health boards and health officers have developed and conducted so successfully in North Carolina for the past 30 odd years. Men of medicine have stood well in the leadership which educated the people of the state to sustain this well conceived and directed movement for safeguarding the health of the masses of the people. We now have a public system of health supervision and services in all of the counties in North Carolina, with a resultant lowering of morbidity and mortality. We recognize that the extension of these programs is a continuing need and that our people must be educated to sustain this public effort. The Committee on Rural Health has brought into focus the need for health consultants in the educational field, and we look to the day when every rural county in North Carolina can employ one or more health education consultants.

We must remember that the Negro cannot be dealt with as a separate entity in our population. While recognizing areas of concentration of these people, their health and medical problems are not essentially separate from other segments or characteristics of our population. Indeed, the Negro has attained a self dependence which very nearly equals that of any other people in our state. Certainly in the planning and the extension of health and medical care within our state there has been no conscious effort to differentiate, and the Negro family shares in the good health movement in proportion to the effort which all the people undertake for themselves.

In conclusion, we can cite the definite progress which has been made during recent years in bringing a better distribution of health and medical care to the people of North Carolina, and we believe an ultimate solution will be found in our effort to fill the gaps. We believe the problem will be solved by evolutionary measures through the earnest efforts of all concerned—the most important of which is the concern of the rural people of North Carolina for which it is noted. We have faith in the combined capacity of these people when stimulated and activated in the true democratic processes of helping themselves to better health.

J. STREET BREWER

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

On September 2 the North Carolina Memorial Hospital in Chapel Hill opened for the reception of patients on all services—public and private. For the month of September all the hospital services, as well as the outpatient department, will be housed in the main building. By October 1 the Medical Clinic Building will be opened, and thereafter all outpatients will be seen in this area.

Patients both for ambulatory and hospital care will be accepted on referral of physicians or welfare agencies. The outpatient clinics will be run on an appointment basis. In order to save the time of the patient it is requested that the referring physicians and agencies make contact with Mr. Thomas Peyton, administrator of the Outpatient Clinic, in advance for an appointment. Further announcements will be made in regard to the schedule of the various clinics as well as that for ward rounds, clinical conferences, and lectures. In the case of private patients the referring physician is requested to make contact with the member of the University medical staff to whom the patient is being sent.

The formal date for the dedication exercises will be announced later. In the meantime the profession of the state has a cordial invitation to visit the institution at any time to see the buildings and to participate in the conferences and clinics.

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Recent appointments to the staff include:

Dr. A. Price Heusner as professor of surgery in charge of neurosurgery. A native of Kansas, he received his training at Swarthmore College, Oxford University in England, Harvard Medical School, and at the Massachusetts General and Boston City Hospitals. In addition to appointments in neurosurgery at the Boston City Hospital, the Massachusetts Memorial Hospitals, and the Bedford and Cushing Veterans Administration Hospitals, he has held teaching appointments at Harvard Medical School and Boston University School of Medicine.

Dr. David A. Davis as professor of anesthesiology. Dr. Davis is a native of Tennessee and a graduate of the Vanderbilt University School of Medicine. Before joining the Department of Anesthesiology at the Medical College of Georgia in 1949, he was a member of the faculty of Tulane University.

Dr. Deborah Cushing Leary as assistant professor of obstetrics and gynecology. Dr. Leary received her medical training at Yale University. She has held appointments at Yale and at Johns Hopkins, and for several years was a professional associate in the Division of Medical Sciences of the National Research Council.

Dr. Charles E. Flowers, Jr., an alumnus of the University Medical School and a graduate of Johns Hopkins University School of Medicine, as assistant professor of obstetrics and gynecology. Dr. Flowers is at the present time on the faculty of the State University of New York; he plans to come to North Carolina in the late fall.

Dr. William H. Sprunt III, of Winston-Salem, as assistant professor of radiology. Dr. Sprunt is a graduate of Harvard Medical School and has held teaching appointments there since 1950.

Part-time appointments include: Dr. Arthur H. London of Durham as clinical professor of pediatrics; Dr. Sidney S. Chipman of Chapel Hill as clinical professor of pediatrics; Dr. W. W. Vaughan of Durham as associate clinical professor of radiology; Dr. Frederick R. Gilmore of Durham as clinical instructor in radiology; Doctors David W. Abse and Marion M. Estes of Raleigh as clinical assistant professors of psychiatry; Dr. Lorant Forizs of Butler as clinical assistant professor of psychiatry; Dr. Joseph M. Hitch of Raleigh as clinical associate professor of medicine in charge of dermatology;

Doctors J. Kempton Jones, Fred G. Patterson, E. M. Hedgpeth, S. B. Alexander, William G. Morgan, James A. Taylor, Robert B. Lindsay, and L. E. Fields, of Chapel Hill, as clinical instructors in medicine; Dr. George W. Crane of Durham as clinical instructor in medicine; Doctors David Kleiman and Louis T. Kermion of Raleigh as clinical instructors in medicine; Dr. Osler Peterson as clinical instructor in medicine. Other part-time appointments are pending.

* * *

Postgraduate medical courses sponsored by the University School of Medicine and the Extension Division have been arranged at Morganton, with the Burke County Medical Society as co-sponsor, and at North Wilkesboro and Elkin, with the Wilkes-Alleghany Counties Medical Society and the Surry-Yadkin Counties Medical Society as co-sponsors. The programs are as follows:

Morganton

October 1

4:00 p.m.—Functional Uterine Bleeding and its Management

7:30 p.m.—Some Newer Concepts in the Management of the Menopausal Patient

Dr. Robert Greenblatt, Professor of Endocrinology, University of Georgia Medical School

October 8

4:00 p.m.—Liver Disease (Exact topic to be announced)

7:30 p.m.—Liver Disease (Exact topic to be announced)

Dr. John Robert Neefe, University of Pennsylvania

October 15

4:00 p.m.—Differential Diagnosis of Anemia

7:30 p.m.—Recent Progress in Treatment of Anemia

Dr. Maurice B. Strauss, Harvard Medical School

October 22

4:00 p.m.—Cardiology (Exact topic to be announced)

7:30 p.m.—Cardiology (Exact topic to be announced)

Dr. Carlton B. Chapman, University of Minnesota

October 29

4:00 p.m.—Recognition and Conservative Management of Peripheral Vascular Disorders

7:30 p.m.—The Surgical Management of Peripheral Vascular Disorders

Dr. Louis G. Herrmann, University of Cincinnati

November 5

4:00 p.m.—Practical Considerations in Therapy of Infectious Diseases

7:30 p.m.—Recent Advances in Pediatrics

Dr. Waldo E. Nelson, Temple University

North Wilkesboro-Elkin

September 30—North Wilkesboro

4:00 p.m.—Functional Uterine Bleeding and its Management

7:30 p.m.—Some Newer Concepts in the Management of the Menopausal Patient

Dr. Robert Greenblatt, University of Georgia Medical School

October 7—Elkin

4:00 p.m.—Liver Disease (Exact topic to be announced)

7:30 p.m.—Liver Disease (Exact topic to be announced)

Dr. John Robert Neefe, University of Pennsylvania

October 14—North Wilkesboro

4:00 p.m.—Differential Diagnosis of Anemia

7:30 p.m.—Recent Progress in Treatment of Anemia

Dr. Maurice B. Strauss, Harvard Medical School

October 21—Elkin

4:00 p.m.—Cardiology (Exact topic to be announced)

7:30 p.m.—Cardiology (Exact topic to be announced)

Dr. Carlton B. Chapman, University of Minnesota

October 28—North Wilkesboro

4:00 p.m.—Recognition and Conservative Management of Peripheral Vascular Disorders

7:30 p.m.—The Surgical Management of Peripheral Vascular Disorders

Dr. Louis G. Herrmann, University of Cincinnati

November 4—Elkin

4:00 p.m.—Practical Considerations in Therapy of Infectious Diseases

7:30 p.m.—Recent Advances in Pediatrics

Dr. Waldo E. Nelson, Temple University

* * *

Dr. John B. Graham, assistant professor of pathology and Markle Scholar in Medical Science, is in Argentina during September. He will participate in a symposium on hemophilia in Buenos Aires on September 20 and later will attend the International Congress of Hematology at Mar del Plata. He has also been invited to address the Argentina National Academy of Medicine.

* * *

The U. S. Air Force has effected a \$10,810 contract with Doctors George D. Penick, C. Bruce Taylor, and K. M. Brinkhous, of the Pathology Department, for a study of cold injury. Frostbite will be produced in hemophilic dogs and the local and systemic effects on the blood coagulation mechanism studied.

* * *

Mr. Milton Huppert, instructor in bacteriology, has received a grant of \$4,276 from the Office of Naval Research to study monilia infections following antibiotic therapy.

* * *

Several members of the Department of Pharmacology attended the fall meeting of the American Society for Pharmacology and Experimental Therapeutics in Madison, Wisconsin, in September; Dr. Thomas C. Butler presented a paper on "The Role of the Liver in the Demethylation of Mephobarbital," and Dr. T. Z. Csaky gave a paper on "Anesthetic Effect of Isopropylidene Compounds of Hexoses and Hexitols."

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

The entire issue of a famous international medical journal is devoted to the work of Duke University scientist Dr. Leonard J. Ravitz. The magazine, *Archivos De Medicina Internacional*, is published by the Washington Institute of Medicine, for doctors in all the countries of South America, Mexico, and Spain.

Dr. Ravitz' work is a study of electrical measurements and treatment in mental illness. The research project, allied with a new electrical theory of matter, is pioneer medical research work.

The Duke doctor is a native of Cleveland, Ohio, and a graduate of the Yale University Medical School. He is an instructor in neuropsychiatry in the Duke Medical School.

* * *

Medical students need to know more about the "scientific principles underlying human behavior," Duke University psychologist Dr. Louis D. Cohen said in Washington recently, in a speech delivered at the annual meeting of the American Psychological Association on "What Should be the Content of Psychology Courses for Medical Students?"

The curriculum of most medical schools devotes little time to "such basic social and biological sciences as psychology, sociology and anthropology, economics and public health," the psychologist said. "The contributions of physics and chemistry," Dr. Cohen continued, "while having made significant impacts on the prevention of disease and the study and care of the sick has also had an unfortunate effect, in that an emphasis has developed on man as an isolated biological unit."

There is a current trend in medical schools, he said, to increase the amount of time given to the study of psychology and related subjects.

FIFTH ANNUAL RURAL HEALTH CONFERENCE

Farmers, housewives, doctors, and health leaders alike are expected to participate in the fifth annual Rural Health Conference at the Sir Walter Hotel in Raleigh, October 15, according to Charles E. Spencer of Raleigh, president of the North Carolina Health Council, and Dr. George F. Bond of Bat Cave, chairman of the Committee on Rural Health of the Medical Society of the State of North Carolina.

The Rural Health Conference is particularly aimed at getting rural people, who constitute approximately 66 per cent of the state's population, to attend. Says Dr. Bond: "Above all, what we want is the attendance of the rural people—and we want a program which will be most useful to them. The purpose of this conference is to find out what we need in rural health and how to get it."

Several thousand questionnaires have been distributed by the 36 member agencies of the North Carolina Health Council requesting that rural residents who plan to attend the conference list what they consider the most serious unmet health need in a particular community. From these questionnaires will come the subjects to be discussed in several panel discussions.

Mr. Spencer says, "We believe this is a fine opportunity for service to the rural people we serve, and a time when rural people, doctors, community workers, and other interested people can get together for some real discussion of North Carolina's health problems."

The theme of this year's conference is "Better Health for North Carolina's Rural People."

The annual Rural Health Conference is sponsored jointly by the North Carolina Health Council and the Committee on Rural Health of the Medical Society of the State of North Carolina.

NEWS NOTES FROM THE NORTH CAROLINA TUBERCULOSIS ASSOCIATION

Executive secretaries from twelve local associations attended the NCTA Institute held in Raleigh from August 4-8.

Held for the purpose of giving the new workers an insight into the tuberculosis control program, the institute stressed the history and nature of TB, Casefinding, Health Education, Rehabilitation, Public Relations, Office Practices and Procedures and Seal Sale.

* * *

The forty-first annual meeting of the North Carolina Public Health Association will be held at the Battery Park Hotel in Asheville on October 9-11.

Dr. John J. Wright, School of Public Health, University of North Carolina, the president, will preside over the meeting. Featured on the general session on Thursday evening, October 10, will be Dr. Reginald Atwater of New York, Executive Secretary of the American Public Health Association. Dr. Atwater's first public health experience was in North Carolina, and his appearance on the convention program is of wide interest throughout the state.

* * *

The 1952 annual meeting of the Southern Tuberculosis Association was held at the Roney Plaza Hotel, Miami Beach, Florida, on September 11-13. Appearing on the program from North Carolina were Dr. H. Stuart Willis, superintendent, North Carolina Sanatoriums, and Dr. W. S. Schwartz, Oteen Veterans Administration Hospital, Oteen.

* * *

Figures Show Decrease

A total of 629 persons in North Carolina died from tuberculosis in 1951, according to the North Carolina State Board of Health. This represents a decrease of 119 deaths from the 1950 figure. A total of 748 persons died from tuberculosis during 1950. The death rate for 1951 was 15.3 per 100,000 population, as compared with 18.4 per 100,000 in 1950.

The total number of cases of tuberculosis (all forms) reported during 1951 was 3,106. There were 546 less cases reported during 1951 than in 1950. The 1950 figure shows that 3,653 cases were reported. The case rate for 1951 was 75.3 per 100,000 population, as compared with a rate of 89.9 in 1950.

CARTARET COUNTY MEDICAL SOCIETY

Dr. Paul F. Whitaker of Kinston addressed the Carteret County Medical Society at its monthly meeting Monday night, August 11. The meeting was a dinner meeting at the Morehead City Hospital, the hospital acting as host. Dr. M. B. Morey, president, presided.

Dr. Whitaker's subject was Psychosomatic Medicine. He dealt particularly with the anxiety states. He was introduced by Dr. S. W. Thompson.

Other matters coming before the society were the following announcements by the health officer, Dr. Thomas Ennett: There were 3 cases of polio in the county within the past month. The VD Medical Center at Durham has been closed by the State Health Department; and instead, several VD Centers have been established in different parts of the state. The one serving Carteret County is in the Wilmington Health Department.

Dr. Ennett, who is chairman of the Public Relations Committee of the society, announced the appointment of Dr. F. E. Hyde as medical member, and Dr. John W. Morris as surgical member of the committee.

Dr. Ennett was appointed by President Morey to represent the Carteret County Medical Society at the North Carolina Rural Health Council Meeting to be held at the Sir Walter Hotel in Raleigh on October 15.

N. THOMAS ENNETT, M.D.
Corresponding Secretary

HALIFAX COUNTY MEDICAL SOCIETY

The Halifax County Medical Society held its regular monthly dinner meeting on August 8 at the Roanoke Rapids Hospital. The program consisted of an open forum on the Hospital Care Association of North Carolina.

EDGECOMBE-NASH MEDICAL SOCIETY

Dr. J. M. Bosworth, division medical director, Liberty Mutual Insurance Company, Atlanta, Georgia, discussed the topic, "Industrial Medicine as Practiced Today," at the monthly meeting of the Edgcombe-Nash Medical Society held on August 13. A case report on "Spontaneous Rupture of the Uterus During Labor," presented by Dr. J. G. Raby, completed the program.

NEWS NOTES

Dr. George P. Highsmith has announced the opening of his office for the practice of internal medicine in Thomasville.

SOUTHERN MEDICAL AUXILIARY INVITES WIVES TO MIAMI

The Southern Medical Association meets in Miami, Florida, November 10-13, 1952, and all indications are that it will be a meeting to be long remembered. The hospitable Miamians are going all out in planning a delightful social program for the ladies.

Wives attending the Southern Medical Association meeting with their husbands are cordially invited to attend all activities of the Auxiliary.

POSTGRADUATE COURSE ON THE PREMATURE INFANT

The Louisiana State Department of Health and Charity Hospital of Louisiana at New Orleans, in cooperation with the Louisiana State University School of Medicine and the Tulane University School of Medicine, will present a postgraduate course on the premature infant, at the hospital, November 5-19. The course, which will deal with problems involved in the care of premature infants at delivery, in the nursery, and in preparation for discharge, will consist of lectures, nursery rounds, seminars, field trips, and clinical conferences. Registration is limited to 10; there are no tuition fees. Applications and requests for further information may be addressed to: Dr. Elaine Allen, Premature Infant Center, Charity Hospital, New Orleans, Louisiana.

POSTGRADUATE COURSE FOR GENERAL PRACTITIONERS

The Emory University School of Medicine, in cooperation with the Medical Association of Georgia and the Georgia chapter of the American Academy of General Practice, announces the fifth annual postgraduate course for general practitioners, October 6 through 10, at Grady Memorial Hospital Auditorium, Atlanta, Georgia. The course is designed to present current ideas concerning the diagnostic and therapeutic problems of general practice. The course can also be used in meeting part of the requirements for membership in the American Academy of General Practice.

The registration fee is \$10. Applications and inquiries should be addressed to: Director of Postgraduate Education, Emory University School of Medicine, 36 Butler Street, S.E., Atlanta 3, Georgia.

CONFERENCE ON REHABILITATION OF THE PARAPLEGIC

A conference on "Rehabilitation of the Paraplegic" will be held at the Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange, New Jersey, on October 10. The Fred H. Albee Annual Lecture on Rehabilitation will be delivered at 10:30 a.m. by Dr. Ludwig Guttmann, director of the Spinal Injuries Centre, Stoke-Mandeville, Eng-

land. In the afternoon, panel discussions on "Residual Problems of Paraplegia" will be held as follows: **Neurology**—"Spasticity and Its Control"—Dr. Donald Munro, chairman; **Plastic Surgery**—"Treatment of Recurrent Decubiti"—Dr. Herbert Conway, chairman; **Urology**—"Renal Prognosis of the Paraplegic"—Dr. Herbert Talbot, chairman; **Rehabilitation**—"The Future of the Ambulant Patient"—Dr. Howard A. Rusk, chairman.

Physicians desiring to attend the conference should communicate with the registrar at the Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange, New Jersey.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

A.M.A. Offers Aid to Doctors Discharged from Military

A new program has been set up by the American Medical Association to acquaint physicians newly discharged from the armed forces with existing opportunities in private practice, industry, hospitals and medical schools throughout the country. Inaugurated by the Council on National Emergency Medical Service, the plan incidentally will also provide replacements for physicians classified priority I under the "Doctor Draft Law" who are now deferred from active military service because of essentiality.

* * *

Standards for Indigent Care

The Committee on Indigent Care of the A.M.A.'s Council on Medical Service has outlined the following criteria for developing indigent medical care plans. The committee believes that indigent medical care plans should provide all the services which normally are available locally to other citizens, and should make equal services available to all indigent persons—the blind, old age pensioners, dependent children. Also, the committee feels that such a plan should provide for medical supervision and, wherever possible, offer a free choice of physician for both home and office care. The plan should use existing facilities, avoid duplication, and provide for local administration by a single agency of the medical program for all groups concerned.

The committee believes that medical care for the indigent is a local problem requiring the wholehearted cooperation and participation of local physicians. Such plans should be administered locally regardless of the source of funds.

* * *

U.S. Medical Schools Receive Volunteer Grants

The sum of \$671,834 was turned over by the American Medical Education Foundation to the National Fund for Medical Education for distribution to the 79 medical schools in the United States. This represents the amount collected from physicians during the first six months of 1952. This money added to the amount collected from industry by the National Fund for Medical Education was distributed July 31 in the form of grants amounting to \$15,000 to each of the 72 four year schools and \$7,500 to each of the seven two year schools.

* * *

A.M.A. Studies Allied Scientific Fields

The American Medical Association has deferred action on the establishment of any new specialty boards involving the certification of persons who are not doctors of medicine until after the Council on Medical Education and Hospitals has completed its study of all allied scientific fields. This report will include studies of various professional non-physician groups whose work is closely related to the practice of medicine, such as clinical chemistry and clinical psychology.

* * *

New Heart Disease Transcriptions Available September 15

A new series of radio transcriptions entitled "The Heart of America" were released September 15 by the A.M.A.'s Bureau of Health Education. Dramatizing various aspects of the heart and its diseases, the 13 programs in the series are summarized by outstanding cardiologists and related experts. The series was produced in cooperation with the American Heart Association.

* * *

Hospital Rating Office Opens for Business

Director Edwin L. Crosby, M.D., former superintendent of Johns Hopkins Hospital, Baltimore, opened the new Joint Commission on Accreditation of Hospitals office September 1 at 660 Rush Street, Chicago. The Commission, with representatives from the American Hospital Association, the American College of Surgeons, the American College of Physicians, the Canadian Medical Association, and the American Medical Association, will assume responsibility for the hospital standardization program formerly carried out by the American College of Surgeons. The Commission's program will get under way early this fall.

* * *

S.A.M.A. Honorary Memberships Open to Physicians

"Keep up with the young men who are keeping up with you" is the theme of a fall campaign now under way by the Student American Medical Association to encourage physicians to join the organization as honorary members. This new membership category was created at the request of doctors who wish to keep in touch with the student side of medical education, reports David Buchanan, national president.

Honorary membership, with yearly dues of five dollars, entitles the physician to a subscription to the monthly 72 page Journal of the S.A.M.A. as well as participation in the annual convention and other activities of the association. Physicians and friends of the medical student interested in becoming honorary members should write Mr. David Buchanan, Student American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

* * *

A.M.A. Prepares New Health Exhibit

Designed for lay audiences, a new portable exhibit entitled "Health—1952" will be available by mid-September from the A.M.A.'s Bureau of Exhibits for state and county medical societies. The exhibit presents an over-all picture of health conditions in the United States at the present time.

The Bureau plans to revise and bring the exhibit up to date each year. The only cost involved to medical societies will be shipping charges both ways.

AMERICAN DERMATOLOGICAL ASSOCIATION

The American Dermatological Association is again offering a prize of \$300 for the best essay submitted for original work, not previously published, relative to some fundamental aspect of dermatology or syphilology. The purpose of this contest is to stimulate investigators to original work in these fields.

Manuscripts typed in English with double spacing and ample margins as for publication, together with illustrations, charts, and tables, all of which must be in triplicate, are to be submitted not later than January 1, 1953. The manuscripts should be sent to Dr. Louis A. Brunsting, Secretary, American Dermatological Association, 102-110 Second Avenue, Southwest, Rochester, Minnesota. Those which are incomplete in any of the above respects will not be considered.

Competition in this prize contest is open to scientists generally, not necessarily to physicians.

The award will be made by a committee of judges selected to pass on the essays by the Research Aid Committee of the American Dermatological Association and the decision of the judges shall be final. The essays are judged on the following considerations: (1) originality of ideas; (2) potential importance of the work; (3) experimental methods and use of controls; (4) evaluation of results; (5) clarity of presentation. This contest is planned as an annual one, but if in any year, at the discretion of the Committee and judges, no paper worthy of a prize is offered, the award may be omitted.

The prize winning candidate may be invited to present his paper before the annual meeting of the American Dermatological Association with expenses paid in addition to the \$300 prize. Further information regarding this essay contest may be obtained by writing to the secretary of the American Dermatological Association.

The next annual meeting of the American Dermatological Association will be held June 9-13, 1953, at The Lake Placid Club, Essex County, New York.

AMERICAN UROLOGICAL ASSOCIATION

The American Urological Association offers an annual award of \$1,000 (first prize of \$500, second prize \$300, and third prize \$200) for essays on the result of some clinical or laboratory research in urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Hotel Jefferson, St. Louis, Missouri, May 11-14, 1953.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before January 15, 1953.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY

Volume I, Number 1, of a new monthly journal entitled *Obstetrics and Gynecology*, sponsored by the American Academy of Obstetrics and Gynecology, will appear in January, 1953. It is believed to be the first new monthly periodical exclusively devoted to this field to be launched in over 30 years, according to an announcement by Dr. Carl P. Huber, academy president. The new journal will publish original articles, reviews, clinical notes, editorials, and book reviews covering the entire range of clinical obstetrics and gynecology.

The Academy has appointed Dr. Ralph A. Reis of Chicago the editor of *Obstetrics and Gynecology* and the following board of associate editors: F. Bayard Carter, M.D., R. Gordon Douglas, M.D., Ludwig A. Emge, M.D., Arthur T. Hertig, M.D., S. Leon Israel, M.D., William F. Mengert, M.D., Norman F. Miller, M.D., and Herbert E. Schmitz, M.D.

A statement by the editors sets forth the three-fold purpose of the new publication: "To report the new developments in obstetrics and gynecology promptly, accurately and completely; to offer an adequate publishing outlet to investigators both in our specialty and in allied fields; and to serve as the official publication of the American Academy of Obstetrics and Gynecology."

Papers to be considered for publication should be addressed to the editor, Dr. Ralph A. Reis, 104 South Michigan Avenue, Chicago 3, Illinois.

The charter subscription price will be 12 dollars per year in the U. S. A. and countries of the Pan-

American Union (\$13.00 in Canada; \$14.00 elsewhere). Subscriptions and all business inquiries should be addressed to the publishers, Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 East 33rd Street, New York 16, New York.

ARTHRITIS AND RHEUMATISM FOUNDATION

The Arthritis and Rheumatism Foundation is offering to qualified individuals research fellowships in the basic sciences related to arthritis. Fellowships will be granted on both the predoctoral and postdoctoral levels, and will run for one year with prospect of renewal. The predoctoral fellowships will range from \$1,500 to \$3,000 per annum depending on the family responsibilities of the fellow, and the postdoctoral fellowships will range from \$3,000 to \$6,000 on the same basis.

The deadline for applications is November 1, 1952. Applications will be reviewed and awards made by February 15, 1953. For information and application forms, address the medical director, the Arthritis and Rheumatism Foundation, 23 West 45th Street, New York 36, New York.

SOCIETY FOR THE PREVENTION OF ASPHYXIAL DEATH

The New York Eye and Ear Infirmary, in cooperation with the Society for the Prevention of Asphyxial Death, Inc., announces the resumption of its New York City courses in laryngoscopy and intubation (Flagging) for the prevention and treatment of acute asphyxial accidents. These courses are given at the New York Academy of Sciences, 2 East 63rd Street, the first Friday and Saturday of each month. The matriculation fee is \$50.

The purpose of the course is to emphasize asphyxia as a major medical problem and to acquaint the general practitioner, pediatrician, obstetrician, and others with the death zone of the respiratory tract. This information is presently saving lives, in the hospital, in the office, and in outside practice.

If you are interested in attending one of the monthly courses in New York City or in having a course presented in your home city, please communicate with Secretary, S.P.A.D. 2 East 63rd Street, New York City 21, New York.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

The National Gastroenterological Association will hold its seventeenth annual convention and scientific sessions at the Hotel Statler in New York City on October 20, 21, 22, 1952.

Immediately following the convention, on October 23, 24, 25, 1952, the Association will conduct its fourth annual course in postgraduate gastroenterology at the Hotel Statler in New York, New York. The course will again be under the personal direction of Drs. O. H. Wangenstein of Minneapolis, Minnesota, and I. Snapper of New York.

Further information concerning the program and details of the postgraduate course may be obtained by writing to the Secretary, National Gastroenterological Association, 1819 Broadway, New York 23, New York.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

First of its kind is a booklet, **Psychological Problems of Cerebral Palsy**, just published by the National Society for Crippled Children and Adults, the Easter Seal Society.

The proceedings of the first symposium ever held to consider exclusively the psychological aspects of cerebral palsy, the booklet brings together the important papers of outstanding psychologists, presented at that meeting. More than 500 of the nation's leading psychologists attended the symposium held in Chicago under the joint sponsorship of the Division of School Psychologists of the American Psychological Association and the National Society.

Copies of "Psychological Problems of Cerebral Palsy" can be purchased at \$1.25 apiece from the National Society for Crippled Children and Adults, 11 South La Salle Street, Chicago 3, Illinois.

* * *

Appointment of Alfred Sasser, Jr., as consultant in employment for the National Society for Crippled Children and Adults has been announced by Lawrence J. Linck, executive director.

Sasser, who has attracted wide attention for his work in the pioneering program of rehabilitation at the State Hospital for Epileptics, Parsons, Kansas, succeeds Edward L. Morris, who recently became executive director of Chicago's Portal House. He took over his new duties September 1, assuming also at that time active supervision of the Easter Seal Society's National Personnel Registry and Employment Service.

The National Personnel Registry and Employment Service which will be one of Sasser's responsibilities at the National Society, is unique in its work of recruitment and free placement of professional personnel in the field of the crippled. Since its establishment five years ago it has placed more than 1,200 professional persons in key positions.

INSTITUTE OF LIFE INSURANCE

What is probably the largest actuarial study of physical impairments ever undertaken, is now under way in the life insurance companies, embracing 15 years' experience under nearly 400 classes of impairments and the tabulation of many millions of entries.

The study is being made by the Committee on Mortality of the Society of Actuaries, a professional organization made up of more than 1,000 actuaries in the United States and Canada. It is the first major statistical study of medical impairments made since before World War II, the manpower shortage of the war years having made it necessary to suspend such work.

The extensive studies of physical impairments are among the important contributions that life insurance makes to better health in the United States and Canada. They have been made periodically since the turn of the century and have provided a wealth of statistical data, not obtainable from other sources, to supplement clinical knowledge of health factors. In the case of many impairments recorded on life insurance applications, clinical medicine would not be able to follow equally large numbers of patients for long periods and trace them until they died.

Since 1945, the life insurance companies have been cooperating in heart disease research through the Life Insurance Medical Research Fund. Already nearly \$5,000,000 has been spent by the Fund in a search for the causes and curbs of this No. 1 killer, which accounts for more than half of all policyholder deaths in this country.

FEDERAL SECURITY AGENCY

Food and Drug Administration

The Food and Drug Administration of the Federal Security Agency recently announced its decision to permit the continued distribution of the antibiotic drug Chloromycetin under revised labeling that will caution physicians explicitly against its indiscriminate use.

Charles W. Crawford, Commissioner of Food and Drugs, said, "The Administration has weighed the value of the drug against its capabilities for causing harm and has decided that it should continue to be available for careful use by the medical profession in those serious and sometimes fatal diseases in which its use is necessary."

The Commissioner said "FDA's decision was similar in principle to one made every day by thousands of doctors throughout the country who weigh the need for a potent drug against the possibility of harm to the patient."

Reports of blood disorders attributed to Chloromycetin led to a nationwide survey by the FDA late in June of the case records in hospitals and clinics. The case histories turned up by this survey were referred to the National Research Council for its aid in evaluating the information. FDA's decision was based on the findings and recommendations of a special committee of the Council's Division of Medical Sciences.

* * *

Public Health Service

Public Health Service grants to support training in cancer diagnosis and treatment in 21 states, the District of Columbia, and Puerto Rico have been announced by the Federal Security Agency.

The National Advisory Cancer Council, established by law and composed of outstanding citizens skilled in the medical sciences, education, and public affairs, examines all applications for grants and recommends appropriate action to the Surgeon General who may award grants only when they are recommended by the Council.

Aid in establishing a new cancer teaching program was given by a grant to the University of North Carolina Dental School. All other grants were for continuation of previously supported projects, including a grant of \$25,000 to the University of North Carolina for a program under the direction of Dr. K. M. Brinkhous.

VETERANS ADMINISTRATION

Eligible veterans will be admitted to Veterans Administration hospitals on the basis of nine new priority groups, VA announced recently. VA said the nine priority groups are based on laws enacted by the Congress and administered by the agency. The groupings are designed to establish an equitable rule governing the use of vacant beds for all persons eligible for admission or transfer to a particular VA hospital under these laws.

Excluding emergency admissions, all eligible persons will be admitted in the following order of priority:

Group 1—War veterans and those who served since June 27, 1950 (the start of Korean hostilities) who require hospitalization for service-connected disabilities.

Group 2—Peacetime veterans requiring hospitalization for service-connected or line of duty discharge disabilities.

Group 3—Veterans whose hospitalization has been requested by authorized officials for observation and examination purposes.

Group 4—Wartime, post-Korea, and peacetime veterans with service-connected disabilities or with line of duty discharges who are currently hospitalized by VA in non-VA hospitals, but have requested transfer to a VA hospital.

Group 5—Wartime, post-Korea, and peacetime veterans who are currently hospitalized by VA for treatment of nonservice-connected disabilities, but whose transfer from one hospital to another has been requested by authorized officials for medical reasons.

Group 6—Wartime, post-Korea, and peacetime veterans with compensable service-connected disabilities or discharged for line of duty disabilities requiring hospitalization for nonservice-connected disabilities.

Group 7—Wartime, post-Korea, and certain veterans retired from the U. S. Armed Forces for physical disabilities, having no compensable service-connected disabilities and not discharged for line of duty disabilities, who require hospitalization for nonservice-connected disabilities.

Group 8—Non-veterans whose hospitalization has been requested by authorized officials, excepting U. S. Armed Forces personnel whose hospitalization is directed by the VA Central Office in Washington, D. C.

Group 9—All eligible veterans currently hospitalized in another VA hospital who have requested transfer for personal reasons, but whose transfer is not necessary for medical reasons; and certain eligible veterans whom VA has hospitalized in non-VA hospitals and who have requested transfer to VA hospitals for personal reasons but whose transfer is not necessary for medical reasons.

The general policy requires that a person in any given priority group will be scheduled for admission only when there are no cases for whom the vacant bed may be used in all other groups listed above his group.

BOOK REVIEWS

Peptic Ulcer—Clinical Aspects—Diagnosis—Management. Edited by David J. Sandweiss, M.D., F.A.C.P., Associate Attending Physician, Division of Internal Medicine, Harper Hospital, Detroit, Michigan. 790 pages with 164 figures. Price, \$15.00. Philadelphia and London: W. B. Saunders Company, 1951.

Dr. T. Grier Miller, in his presidential address to the American Gastroenterological Association, pays tribute to Dr. Sandweiss as "the inspiration and the energizing factor in the production of the first Association textbook on a digestive tract disease." Dr. Sandweiss deserves much credit for the leading part he has taken in producing such a comprehensive work on what is perhaps the most important digestive tract disease. The book begins with the anatomy and physiology of the upper gastrointestinal tract, then discusses in detail the pathogenesis and etiology of ulcer, the diagnosis, the treatment both medical and surgical, of ulcer, and finally the complications of ulcer.

There is necessarily a great deal of repetition and some difference in viewpoints; but when one has finished reading the book he knows that it deserves to be described by the over-worked word, authoritative.

The Treatment of Injuries to the Nervous System. By Donald Munro, M.D., F.A.C.S., Surgeon-in-Chief, Department of Neurosurgery, the Boston City Hospital; Associate Professor of Neurosurgery, Boston University School of Medicine. 284 pages with 47 figures. Price, \$7.50. Philadelphia and London: W. B. Saunders Company, 1952.

The author begins his preface with the following sentence: "This book is written primarily for the use of the general surgeon and the general practitioner." The work serves as a vehicle for the author to discuss his own theories regarding certain aspects of the diagnosis and treatment of head injuries, which are, at best, controversial. This material is presented in an arbitrary way, without any real attempt to give credence to other concepts or to recent information published during the last 10 years.

It is maintained throughout the volume that neurosurgical cases should be concentrated in neurosurgical centers, but the major portion of the book is devoted to the details of the care of paraplegic patients, the prevention of bed sores, the care of paralyzed bladders, and the rehabilitation of such patients. The author is a pioneer and a master in this latter field, and uses the book to present his own opinions on these matters. This particular section of the book, however, is not of special interest to the general practitioner or to the general surgeon.

The most valuable portion of the work is contained in the last three short chapters, concerning the philosophy of rehabilitation of patients, the responsibility of hospital trustees and staff in the care of these patients, and a particularly valuable, well organized chapter on the cost of medical care in paraplegia and how it may be modified by re-

habilitation services. This latter chapter is written by Stanwood L. Hansen, assistant vice president of Liberty Mutual Insurance Company. The chapters devoted to rehabilitation, and this particular chapter, could well be studied by those interested in Workmen's Compensation laws and the cost of such care in North Carolina.

The organization of this book is not good. There is repetition, with cross references to previous sections, due apparently, to the author's desire to leave out no detail.

A book written for general surgeons and general practitioners on a specialized subject should be well illustrated. This book contains a relatively small number of illustrations, and many of these are not of the highest quality. The book, however, does have many virtues and will be of considerable interest to those interested in the field of neurological surgery, orthopedics, and urology.

Milibis Tablets in New Packing

Milibis, an amebicidal preparation introduced by Winthrop-Stearns, Inc., is now being offered to the medical profession and drug trade in bottles of 500 tablets, of 0.5 Gm. each. The compound was previously available in 25's only.

In intestinal amebiasis, Milibis has proved to be an efficient amebicide because of its low toxicity and relative insolubility, resulting in high concentration in the lower intestine and rectum. Clinical tests have shown that the drug is effective in single course treatment in a large percentage of amebiasis cases.

Recommended dosage of Milibis is 0.5 Gm. three times daily for seven to ten days. Further courses are given if positive stool findings persist.

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to the Medical Society of the State of North Carolina

TWENTY-NINTH ANNUAL SESSION

Held at Pinehurst, May 5, 1952

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† Deceased.

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CONVENTION PROGRAM

Sunday, May 4, 1952

8:00 p.m.—Memorial Service for departed Medical
Society and Auxiliary Members
(Ball Room)
Mrs. H. Stuart Willis, Chairman, Aux-
iliary Memorial Committee

Monday, May 5, 1952

8:00 p.m.—Executive Board Meeting (Dutch Room)
8:30 p.m.—Bingo Party (Large Card Room)
Mrs. George Heinitsh, Chairman

Tuesday, May 6, 1952

9:00 a.m.—House of Delegates of Medical Auxil-
iary (Pine Room)
11:00 a.m.—Coca Cola Intermission
11:30 a.m.—Annual Meeting of Medical Auxiliary
(Pine Room)
1:00 p.m.—Luncheon (Pinehurst Country Club)
honoring Mrs. Leo Schaefer, First Vice
President of the Auxiliary to the Amer-
ican Medical Association, and Mrs. Stan-
ley A. Hill, President of the Auxiliary
to the Southern Medical Association
Mrs. Michael Pishkoe, Chairman
Fashion Show, Mary Rice Shop, Hamlet
7:00 p.m.—President's Dinner (Carolina Hotel
Dining Room)
10:00 p.m.—Annual Ball (Ball Room)

Wednesday, May 7, 1952

9:00 a.m.—Breakfast (Stag Room) Medical Auxil-
iary Executive Board Members and
County Presidents
10:00 a.m.—Bridge and Canasta Party
(Large Card Room)
Mrs. R. L. McMillan, Chairman

PRE-CONVENTION MEETING OF THE EXECUTIVE BOARD

Monday, May 5

Minutes

The annual meeting of the Board of Directors of
the Auxiliary to the Medical Society of North Caro-
lina was held in the Dutch Room of the Carolina
Hotel in Pinehurst on Monday, May 5, at 8 p.m.

The president, Mrs. B. W. Roberts of Durham,
called the meeting to order and extended greetings.

Mrs. H. Stuart Willis of McCain gave the invo-
cation.

Twenty-six members of the board attended the
meeting.

The minutes of the 1951-1952 fall meeting of the
Executive Board were read and approved.

In the absence of Mrs. P. P. McCain, chairman of
past presidents, there was no report.

Mrs. R. D. McMillan, Sr., president-elect, spoke
briefly on plans for the ensuing year and paid high
tribute to Mrs. John Everett Wright, who had pre-
viously resigned as president-elect because of poor
health.

Mrs. Harry L. Johnson, first vice president in
charge of organization, offered her report and intro-
duced the following district councilors who in turn
read their reports:

Third District.....Mrs. James B. Lounsbury
Fourth District.....Mrs. Leon Robertson
Fifth District.....Mrs. R. D. Croom
Sixth District.....Mrs. W. P. Richardson
Seventh District.....Mrs. R. S. Clinton
Eighth District.....Mrs. W. L. Kirby
Tenth District.....Mrs. Joseph McGowan

Mrs. T. P. Brinn read Mrs. Everett Sawyer's re-
port for the First District, and Mrs. Harry L. John-
son gave Mrs. E. C. Richardson's report for the
Second District. Mrs. Alfred Kent, Jr., Ninth Dis-
trict, was absent, and no report was given. All re-
ports were approved by the group for filing.

Mrs. J. C. Peele, second vice president in charge
of projects, introduced the following members of
her committee, who in turn gave their reports:

Mrs. Milton Clark.....Chairman McCain Bed
Mrs. M. I. Fleming.....Chairman Cooper Bed
Mrs. Charles M. Norfleet, Jr.—

Chairman Student Loan Fund

Mrs. Peele reported for Mrs. G. M. Billings, chair-
man of the Stevens Bed.

The following committee chairmen were recog-
nized and gave their reports:

Mrs. M. D. Hill.....Legislative
Mrs. P. G. Fox.....Program
Mrs. George Harrell.....Civil Defense
Mrs. A. L. O'Briant.....Scrap Book
Mrs. H. Stuart Willis.....Memorials
Mrs. J. S. Hiatt, Jr.—

Jane Todd Crawford Memorial

Reports were read by the recording secretary in
the absence of the following chairmen:

Mrs. D. M. Royal.....Public Relations
Mrs. Clyde Brown.....Today's Health
Mrs. Charles H. Gay.....Historian
Mrs. H. C. Lennon.....Research
Mrs. E. G. Goodman.....Radio and Movies
Mrs. C. A. McNeill.....Newsheet

Mrs. B. W. Roberts reported for Mrs. A. C. Bulla,
Bulletin chairman, that 78 subscriptions had been
obtained to this publication.

Absent also were Mrs. Ralph Fike, Doctors' Day
chairman, and Mrs. Robert Creadick, press and pub-
licity chairman, and no reports were given.

Mrs. A. L. O'Briant, councilor to the Auxiliary to
the Southern Medical Association, gave her report
and reminded the group of the Southern Medical
Association meeting in Miami, Florida, November
10-13, 1952, urging that as many as possible attend.
She also asked Auxiliary members to use their in-
fluence in getting their husbands to join the South-
ern Medical Association.

All committee reports were accepted for filing.

Mrs. E. C. Judd, treasurer, read her report and
presented the budget for the new year. Both were
approved by the group.

The following recommendations were made, to be
presented the following morning to the House of
Delegates for its considerations:

1. That the treasurer of the Auxiliary to the Med-
ical Society of North Carolina be bonded for a pe-
riod of three years by the same company that bonds
the treasurer of the Medical Society of North
Carolina.

2. That the Auxiliary renew its membership for

the year 1952-1953 in the North Carolina Health Council, an organization carrying \$10.00 a year membership dues.

3. That the Auxiliary continue its membership for 1952-1953 in the North Carolina Family Life Council.

4. That the Auxiliary include in its 1952-1953 budget:

a. An appropriation of \$2.00 for the purchase of four copies of "The Directory of State Health Organizations," which Directory is published by the North Carolina Health Council;

b. An appropriation of \$35.00 for the purchase of 100 copies of the Revised National Handbook, to be distributed to the State Committee chairman and the county presidents.

5. That the recommendation submitted by Mrs. C. T. Wilkinson, chairman of a committee consisting of Mrs. Wilkinson, Mrs. John Reece, and Mrs. E. M. Robertson, appointed by the president, Mrs. B. W. Roberts, and advising the Auxiliary to the Medical Society of North Carolina to join the North Carolina Woman's Council, be adopted. Mrs. Wilkinson reviewed the reason for founding the Council, its history to date, and read correspondence to the group from the national president of the Auxiliary to the A.M.A. and the Medical Society State Advisory Board, giving their permission to the Auxiliary to join such an organization.

6. That the recommendation from the Advisory Board to the Auxiliary of the Medical Society of North Carolina concerning delegates to the A.M.A. convention be adopted: namely, that the Auxiliary pay \$25.00 each for four representatives consisting of the president, president-elect, two delegates appointed by the president from the Executive Board at large, or four alternates appointed by the president.

7. The McCain and Stevens Endowment Funds having been completed and the Cooper Bed Endowment fund on its way to completion, Mrs. Roberts announced the appointment of the following Project Committee: Mrs. Thomas Leslie Lee (chairman), Mrs. Ben Royal, and Mrs. Sidney Smith, whose purpose of appointment was to study and recommend the adoption of any new Auxiliary projects it deemed advisable. Mrs. Lee's committee made the following recommendations:

a. That financial aid be given to the Cancer Institute, Lumberton, to whatever extent the Finance Committee deems appropriate according to funds available, and that an educational program be promoted to make this available service better known to the public.

b. That the Auxiliary take as a second project the writing and compiling of biographies of all presidents of the State Medical Society.

c. That the Salvation Army Maternity Home and Hospital of Durham become a yearly project.

With the above named projects in mind, the special Projects Committee recommended:

1. That the Medical Auxiliary go on record as approving the projects;

2. That committees be appointed to investigate and work out the details of carrying out the projects.

A Nominating Committee was elected consisting of the following:

Mrs. R. D. Croom.....Fifth District
Mrs. Westbrook Murphy.....Tenth District
Mrs. Charles M. Norfleet, Jr.—

.....Eighth District
Mrs. Charles Nance.....Seventh District
Mrs. Everett Sawyer.....First District

There being no further business, the meeting was adjourned.

MRS. HERMON K. HERRIN,
Recording Secretary

FIRST SESSION OF THE HOUSE OF DELEGATES

Tuesday, May 6

Minutes

The first session of the House of Delegates of the Auxiliary to the Medical Society of the State of North Carolina convened at 9:00 a.m. in the Pine Room of the Carolina Hotel in Pinehurst, with Mrs. B. W. Roberts of Durham, president, presiding.

Mrs. Vernon Lassiter, Winston-Salem, offered the invocation.

Twenty board members and 37 delegates answered the roll call.

Mrs. Harry L. Johnson, first vice president, took the chair while Mrs. Roberts gave her report. Mrs. Roberts thanked the group for working with her so beautifully during the year.

Reports of other officers were then given, including those of Mrs. R. D. McMillan, Sr., president-elect; Mrs. A. H. Powell, corresponding secretary; Mrs. E. C. Judd, treasurer. All officer's reports were accepted by the group for filing.

Mrs. E. C. Judd then presented the 1952-1953 budget, and upon a motion by Mrs. Glenn Best and a second by Mrs. A. H. Powell its adoption was voted by the group.

Mrs. Harry L. Johnson, first vice president and chairman of organizations, offered her report, complimenting the district councilors and county presidents, whose leadership had made possible all the accomplishments of the State Auxiliary. She called attention particularly to the Eighth District, the only district in the state 100 per cent organized. She then recognized the district councilors, who in turn introduced their county presidents. The county presidents made sentence reports on their most outstanding accomplishment during the year.

Mrs. J. C. Peele, second vice president and chairman of activities, made her report and introduced her chairmen, who in turn offered their reports.

Mrs. M. I. Fleming, chairman of the Cooper Bed, urged that contributions to bed funds henceforth be made to the Cooper Bed, inasmuch as the Stevens and McCain Bed Funds have been completed.

Reports of all executive officers and their committee chairmen were accepted and placed on file.

Mrs. Roberts then recognized her standing committee chairmen. Their reports were read and filed.

Mrs. A. L. O'Brient, chairman of the Scrap Book, requested that all material for next year's Scrap Book be sent in by May 1, 1953.

Mrs. B. W. Roberts reporting for Mrs. A. C. Bulla, Bulletin chairman, announced 78 subscriptions to the Bulletin.

Mrs. J. S. Hiatt, Jr., chairman of the Jane Todd Crawford Memorial Fund, reported North Carolina first among the states in its contributions to this fund.

Mrs. Albert H. Powell reporting for Mrs. J. T. Saunders, chairman of the Revisions Committee, read the Revisions to the Constitution and By-Laws of the Auxiliary to the A.M.A. Upon a motion by Mrs. R. S. Clinton of Gastonia and a second by Mrs. C. T. Wilkinson of Wake Forest, the Auxiliary's delegates to the convention were instructed to vote for these revisions.

Mrs. H. K. Herrin, recording secretary, then presented the recommendations of the Pre-convention Executive Board to the House of Delegates, whereupon the group approved all the recommendations as they appear in the minutes of the Pre-convention Executive Board meeting except recommendation 7. Mrs. R. S. Clinton, Gastonia, moved, and Mrs. J. S. Hiatt, Jr., McCain, seconded the motion, that the establishment of a Heart Bed be added as a project for consideration by the Special Projects Committee. The House of Delegates voted acceptance of this motion.

Mrs. Albert H. Powell, Durham, moved that when the committee considers projects, a complete investigation of the needs of each project be reported in detail to all county presidents for consideration, in time for them to make the wishes of their own auxiliaries known to the Executive Board before its fall meeting, in order that such Board may act in accordance with the wishes of the majority of the county auxiliaries. Mrs. M. I. Fleming, Rocky Mount, seconded the motion, and the group voted its acceptance.

There being no further business, the House of Delegates adjourned for a 30 minute intermission, at which time coca colas were served to the group.

MRS. HERMON K. HERRIN,
Recording Secretary

GENERAL SESSION

Tuesday, May 6

Minutes

The twenty-ninth general session of the Auxiliary to the Medical Society of the State of North Carolina convened at 11:30 a.m. in the Pine Room of the Carolina Hotel in Pinehurst, with Mrs. B. W. Roberts of Durham, president, presiding.

Mrs. W. P. Knight, Greensboro, offered the invocation, after which the group rendered in unison the Pledge of Allegiance and the Pledge of Loyalty.

The address of welcome was given by Mrs. C. T. Greer of Carthage, and Mrs. Lenox Baker of Durham responded.

Special guests introduced at the meeting included: Dr. Olivia Abernathy, member of the Advisory Board to the Auxiliary; Mrs. Frederic C. Hubbard, wife of the president of the State Medical Society; Mrs. J. Street Brewer, wife of the president-elect of the State Medical Society; Mrs. James T. Barnes, wife of the executive secretary of the State Medical Society; Mrs. R. D. McMillan, Sr., president-elect of the Auxiliary; Mrs. David Welton, member of the Research and Romance of Medicine Committee of the Southern Medical Auxiliary; Mrs. Harry L. Johnson, regional director of Southeastern District of the A.M.A. Auxiliary; Mrs. R. S. Clinton, "Woman of the Year" in Gastonia; Mrs. John W. Cline, wife of the president of the A.M.A.; Mrs. Edward Hipp, Memorial chairman of the Southern Medical Auxiliary; Mrs. Frederick Taylor, honorary member of her county auxiliary; Mrs. W. P. Knight, honorary member of her county auxiliary.

The roll call of past presidents was made by Mrs. P. P. McCain.

Mrs. Roberts introduced Dr. Frederic C. Hubbard, president of the State Medical Society, who brought greetings from this group. Significant were his words: "The society holds your presence here a high privilege and a great honor . . . The Auxiliary's backing and cooperation has the effect of pouring oil on the troubled waters of a besieged medical profession. The target of socialistic aims of certain bemuddled political leaders, the Society needs the sustaining, and the quieting influence of your support."

Dr. Rachel Davis, chairman of the Advisory Board of the State Medical Society, made her report. She spoke of the pride she felt in the accomplishments of the Auxiliary in past years, and reminded the group that it was the best Public Relations agent in the state. She offered the following suggestions to the Auxiliary for future digestion:

1. That the Auxiliary increase its scope of work with more attention to: (a) home care of cancer; (b) the Salvation Army Home at Durham; (c) increasing Scholarship Fund; (d) organizing additional county auxiliaries; (e) increasing membership by the addition of associate members to include sisters, daughters, and mothers of doctors.

2. That the Auxiliary request the return of the

Memorial Fund established in memory of Dr. Thomas Leslie Lee, said fund having not been used for the purpose for which it was designed; that it be used for establishing a Library on Cancer, and that said fund be endowed up to the point the Auxiliary deemed wise.

Mrs. Harry L. Johnson introduced Mrs. Leo Schaefer of Salina, Kansas, who gave the main address of the day. In Mrs. Schaefer's talk appeared the following poignant sentences:

"As an Auxiliary member it will be your privilege to: (1) assist the county and state medical society and the A.M.A. in its program for the advancement of medicine and public health; (2) cultivate friendly relations among physicians' families." "This is your opportunity for service!" "1952 election is coming. Vote!" "Offer your time and personal friendliness to your community." "An Auxiliary composed of active enthusiastic members, well informed by means of a good program, will never fail to be good emissaries for the medical profession."

Announcement of Awards was made by Mrs. George Grady Dixon, Ayden, Awards chairman, as follows:

1. \$5.00 award given as a memorial to Thomas Leslie Lee by Mrs. Lee to the auxiliary doing the most to combat socialized medicine—Edgecombe-Nash.

2. \$5.00 award given by Mrs. J. W. Rose to the auxiliary with the greatest increase in membership—Buncombe.

3. \$5.00 award given by Mrs. Ralph Fike to the auxiliary making the largest contribution to the Cooper Bed Fund—Edgecombe-Nash.

4. \$5.00 award given by Mrs. G. M. Billings to the auxiliary making the largest contribution to the Stevens Bed Fund—Buncombe.

5. \$5.00 award given by Mrs. Frederick R. Taylor to the auxiliary sending in the most resolutions against government controlled medicine—Cumberland County.

6. \$5.00 award given by Mrs. Karl Pace to the auxiliary sending in the most subscriptions to *Today's Health*—Wayne County.

7. Achievement Award (Silver Bowl and \$25.00) given by Dr. Rachel Davis to stimulate interest and growth of Auxiliary at county, state, and national levels—Eighth District (first district to be 100 per cent organized).

The Tenth and Fourth Districts were given honorable mention.

Mrs. A. L. O'Briant, councilor to the Southern Medical Association, introduced Mrs. Stanley Hill of Corinth, Mississippi, vice president of Southern Medical Auxiliary, who brought greetings from this group. Mrs. Hill urged that the Auxiliary members use their influence to get their husbands to join the Southern Medical Association.

Mrs. M. I. Fleming, chairman of the Nominating Committee, presented the following slate of officers for the year 1952-1953:

President-Elect—Mrs. G. M. Billings, Morganton; Second Vice President—Mrs. Leon Robertson, Rocky Mount; Treasurer—Mrs. E. C. Judd, Raleigh.

A motion was made by Mrs. J. S. Hiatt, Jr., and seconded by Mrs. Abernathy that the slate be accepted as presented. The motion carried.

Mrs. R. D. McMillan, Sr., announced the appointment of Mrs. J. Irving Biggs, Lumberton, as corresponding secretary.

Installation of officers was conducted by Mrs. P. P. McCain.

Mrs. Roberts then presented the gavel to Mrs. R. D. McMillan, Sr., the incoming president, who expressed her appreciation for the confidence placed in her by the group and asked for its concerted effort in carrying out the program for the new year.

A telegram of congratulations for the work done for Southern Medical Association, from Mrs. V. E. Holcombe, president of the Southern Medical Auxiliary, was read by Mrs. Roberts.

The group voted to send a wire to Mrs. G. M. Billings, the new president-elect, who was unable to attend because of illness, and to write Mrs. John Everett Wright a letter of thanks for her work done as president-elect last year, before she was forced to resign because of illness.

There being no further business, the meeting adjourned.

MRS. HERMON K. HERRIN,
Recording Secretary

Address of the President of the Medical Society of North Carolina

Frederic C. Hubbard, M.D.
North Wilkesboro

I am informed that Lincoln's Gettysburg Address contained 266 words. The Ten Commandments contained 297 words. The Declaration of Independence contained 300 words. The OPS order to reduce the price of cabbage contains 26,911 words. It is not my purpose to burden you with many words in the manner of an alphabetical bureau, but to greet you and welcome you on behalf of the North Carolina Medical Society. I want to tell you briefly how very, very happy we are to have you with us. The Society holds your presence here a high privilege and a great honor.

Since the birth of your organization in 1923, it has grown into a dynamic and powerful force in the interest of better health in North Carolina. Formed with the idea primarily of a social group with 50 charter members, you have now, I believe, around 1,500 members, with an ever increasing enrollment and great potentials and opportunities for service. Your group is generally recognized as a real force in the development of a great medical and health structure in the State of North Carolina.

I trust that the social life of the Auxiliary will be none the less prominent through the years. This gives life and spirit and zest for doing what might otherwise be a dull and tiresome task. The world belongs to those who meet their duties with a smile.

Your motto, "Service to Others," epitomizes the high ideals toward which the organization aims. Your accomplishments, past and present, justify the truth of this maxim. With the spirit of cooperation that has developed within your ranks, the potentialities for greater usefulness are unlimited.

Your backing and cooperation has the effect of pouring oil on the troubled waters of a besieged medical profession. The target of socialistic aims of certain bemuddled political leaders, organized medicine needs the assuring, the sustaining, and the quieting influence of your support. There exists subconsciously in our minds the feeling always that whatever a woman turns her hand to or puts her heart into succeeds. I am almost as sure of this as I am of her intuition. Had it not been for the help of many such groups over the nation, we would certainly have lost the first round in the battle. Your continued support is asked in the fight which still goes on for the preservation of our liberties.

I have examined with much interest your program for 1951-1952. It is very comprehensive and challenging. I was particularly interested in your projects relative to nursing education, hospital service, and public relations. It seems to me that no greater service could be rendered by any group interested in health than to stimulate interest in and give support to these projects. All of your projects are very important, but into these three it seems to me that your group fits admirably.

The tangible results of the Auxiliary's efforts and programs are in evidence in the form of a student

loan fund for nurses, the maintenance of tuberculosis sanatorium beds, contributions to various funds, support of different campaigns, especially for nursing education, active cooperation and support of health agency programs in the state, and the very valuable support given by you to the medical profession in the fight against socialization. Many more results of the work could be mentioned, any single one of which would justify the existence of the organization. The Medical Society and the State of North Carolina have every reason to be proud of your accomplishments.

The future of medical health and hospital services depends much upon the turn taken by these important matters in the very near future. Therefore, they deserve the earnest and studious consideration of all agencies interested in matters of health.

I want to thank you for the great contribution being made to the Society and to your state. I wish to thank you also for the privilege of meeting with you. I assure you it has been a great pleasure. May your visit in Pinehurst be pleasant, and may all your efforts be crowned with success.

Report of the President

As president of the Auxiliary to the Medical Society of the State of North Carolina, I wish to submit the following report:

We have 1,646 paid members for the year 1951-52. We had 1,458 last year.

We have 45 county auxiliaries representing 67 counties, four of which have been organized this year — Onslow, Person, Franklin, and Randolph. The Eighth District is the first to be organized 100 per cent. We have 10 districts, with approximately 10 counties to a district. First District has nine counties, but only 51 doctors. The First District has formed one Auxiliary with these 51 doctors' wives and they had a very successful meeting at Nags Head last summer. They have collected dues and feel as if they are active members of the state Auxiliary, even if they cannot work together as well as the members of some other branches, who are nearer together. Fourth District has only one county to bring into the fold before they are fully organized, and Third, Fifth, Sixth, and Ninth lack two counties each of achieving the 100 per cent record.

Soon after Convention last May, the names of all officers, committee chairmen, district councilors and county presidents were sent to the state office of the North Carolina Medical Society and to the national Auxiliary office.

The first meeting I attended in an official capacity was the Rural Health Conference in Raleigh, June 7-8. This began for me a series of meetings that has given me an insight into the inside working of organizations striving for better health in North Carolina. This has been a privilege, and I never cease to be proud of the leaders in this field and of being a North Carolinian.

On June 12-14, with the other delegates from the Auxiliary, I attended the National Convention in Atlantic City and gave the 1951 report for North Carolina of the work done when Mrs. Harry L. Johnson was president.

On Sunday, August 26, our Advisory Board from the Medical Society met in my home. This is the first time that such a meeting has been held, and it seemed most helpful. We discussed the goals the Auxiliary should have for this year, and, by putting our heads together and following suggestions from Mr. Leroy H. Cox, public relations director of the Medical Society, and Mr. James T. Barnes, executive secretary, we planned a more purposeful program than ever before. We have not attained all the goals, but we have them to add to next year and to keep us striving.

On September 23 our plans were given to the

Executive Board of the State Medical Society meeting in Raleigh. With their approval, we were ready to go to work.

The fall Board meeting was held in the beautiful Planetarium Building in Chapel Hill on September 26, with Orange County Auxiliary wives as hostesses. We were honored to have with us Dr. Frederic C. Hubbard, president of the State Medical Society, and Mrs. Hubbard; Mr. James T. Barnes, executive secretary of the Medical Society, and Mrs. Barnes; Mr. Leroy H. Cox, director of public relations for the State Medical Society; Dr. Rachel Davis, chairman, and Dr. Olivia Abernathy of our Advisory Board from the Medical Society; and Miss Elizabeth Kemble, dean of the School of Nursing, University of North Carolina, 10 past presidents, 22 state officers and committee chairmen, 9 councilors, 20 county presidents, making 96 people in all.

At this meeting, packets of material were given to each county president, officer, district councilor, and committee chairman. The material consisted of a Year Book with our projects and goals for the year, our constitution and by-laws, a sample copy of *Today's Health*, a sample form for securing resolutions against socialized medicine, and all forms for all reports except the narrative ones with deadlines, along with suggested ways to carry out the year's work. If any officer was absent, her packet was mailed to her. This Board meeting was an inspiration to me, because of the number of people interested enough to come and because of the enthusiasm of the assembly.

This year we have three new committee chairmen—Civil Defense, Radio and Movies, and News-sheet.

One of the best aids in keeping our members informed is the newsheet, *Auxiliary News*, sponsored by the Hospital Care Association of Durham for four issues this year. The first issue went to press soon after our fall Board meeting and carried the minutes of the meeting to all of our 1,458 members. The newsheet has an attractive format—with *Auxiliary News*—Auxiliary to the Medical Society—and our seal, designed by Dr. Frederick R. Taylor when his wife was State Auxiliary president. We feel that the newsheet is a credit to us and we are proud to send it to the other state Auxiliaries, but its chief function is to keep us all informed. It carries a Blue Cross article in each issue, a letter from the president, county and district news, and special articles. It reaches each paid member.

As president of the Auxiliary I have attended, or some Auxiliary member has attended for me, the following meetings:

October 5, 1951—The Infantile Paralysis District luncheon in Winston-Salem.

October 14, 15 — Annual meeting of American Cancer Society, North Carolina Division, Asheville.

October 23 — Advisory Council meeting of the North Carolina Nursing Association, Greensboro.

November 15, 16—Annual meeting of the North Carolina Family Life Council, Asheville.

December 8—Commission for Financing of Hospital Care in Chapel Hill.

December 10 — North Carolina Health Council meeting, Raleigh.

December 14—Public Relations Conference, Raleigh. (Auxiliary members were invited to be hostesses at a cocktail party after this meeting.)

January 13, 1952—American Cancer Society meeting, Raleigh.

January 19—Nursing subcommittee—Commission for Financing of Hospital Care, Duke Hospital.

January 23—District meeting of hospitals, Raleigh.

February 15—North Carolina Women's Council meeting, Chapel Hill.

March 8—North Carolina Commission for Financing of Hospital Care.

March 10 — American Cancer Society District Meeting, Burlington.

You can see that the president of the Auxiliary gets a liberal education in the health field.

The Auxiliary supports a bed in each of the three tuberculosis sanatoria of the state. These beds are for the use of doctors, doctors' families, or nurses. At present our guest in the Stevens Bed at Western North Carolina Sanatorium is Mrs. W. C. Ramsey, a graduate nurse. Mrs. Fred G. Holloman, a graduate nurse from Sanatorium is occupying the McCain Bed at North Carolina Sanatorium, and Dr. Frances Noblin is in the Cooper Bed at Wilson. We also have a Student Loan Fund from which a doctor's child can receive \$500 a year for the last two years of his college course. No one is using this Fund at this time. Three hundred, forty-three dollars and eight cents was added this year to the Student Loan Fund.

Mrs. Harry L. Johnson, first vice president in charge of organization, has set up a file of every doctor's wife in our organized counties. Information on these cards show qualifications for Civil Defense. We can furnish the State Civil Defense office with the number of nurses, technicians, and the like, who would be available in case of war.

We have three projects sponsored by the Southern Medical Auxiliary: (1) the Jane Todd Crawford Memorial Fund for scholarships in gynecology, to which we contributed \$81.50 this year; (2) the observance of Doctors' Day; (3) the collection of interesting papers on the lives of anyone connected with the medical profession, articles to be filed in the Southern Medical Auxiliary Research Library. We have sent a great many items to be preserved in this way.

As president I wrote an article for the Auxiliary page of the *North Carolina Medical Journal*, a letter to auxiliary members in each newsheet, and sent a letter to each member of the Executive Board at Christmas, telling them what had been done at the State level to date.

I attended the Second, Fourth, and Sixth District meetings, and the Durham-Orange and Wake County meetings. I was sorry not to be able to go everywhere I was so cordially invited.

In January Mrs. J. E. Wright, our president-elect, called to say that because of ill health, she could not serve next year. It was then the duty of the Executive Committee to pick her successor. We hated to lose Mrs. Wright; we hope to have her later, but we are fortunate to have Mrs. R. D. McMillan, Sr., as president for next year.

The history of the Auxiliary to the Medical Society of the State of North Carolina was written by Mrs. Charles Gay and incorporated in the volume containing the histories of the Medical Auxiliaries of all 48 states, Hawaii, and Alaska, compiled by the Auxiliary to the A.M.A. Mrs. Gay also wrote an article, "The Medical Society—Distaff Side," for *Community Health*, the news organ of Hospital Savings, Chapel Hill, accompanied by a picture of Mrs. P. P. McCain, organizing chairman.

The student receiving a nursing scholarship, started three years ago at James Walker Memorial Hospital, Wilmington, by the past presidents, graduates this May. We hoped to have her with us for luncheon on May 6. Unfortunately she graduates the same day and cannot be present.

I wish I could report all the accomplishments of our 45 branches. All are doing outstanding work in their communities—a few projects are: sponsoring a Community Health Council, providing nursing scholarships, sponsoring the bloodmobile, making and distributing cancer bandages to homes and hospitals, rotating health records to schools, helping with county school lunch program, promoting essay

contests for the County Medical Society in Negro and white schools with prizes of \$250 for white and \$250 for Negro, and furnishing linens for Cancer Institute. This is just a sample of the work that is being done. County medical societies should make more use of the auxiliary in their county. We are anxious to help and will welcome any suggestions from the Medical Society.

I would like to take this opportunity to thank Dr. Hubbard, Mr. Barnes, Mr. Cox, Dr. Davis, Dr. Abernathy, and Dr. Stanford, our Advisory Board, for the stimulation and help they have given us this year.

It gives me pleasure to bring to you a few of the accomplishments of the Auxiliary to the Medical Society of the State of North Carolina.

MRS. B. W. ROBERTS

Report of the President-Elect

It has been my aim to follow an outline of suggestions in regard to the duties of the president-elect which Mrs. Roberts sent me immediately after our annual convention last year. This meant a study of the organization of the Medical Auxiliary on the county, state, and national levels.

On September 26 I attended the Executive Board meeting of the Auxiliary in Chapel Hill at the Morehead Planetarium.

At the Fourth District meeting in Goldsboro, October 25, I was privileged to introduce our speaker, Mrs. B. W. Roberts.

Letters were sent to the district councilors in October requesting a list of five qualified Auxiliary members for chairmen of standing committees.

The high light of my short tenure of office as president-elect was the opportunity of representing our North Carolina Medical Auxiliary at the National Conference for state presidents and presidents-elect in November at Chicago. At this meeting I participated in a panel on "Today's Health." My subject was "Today's Health in Our Schools," which was suggested by Mrs. Clyde Brown, Today's Health chairman. The inspiration and information about Auxiliary work received was vital and I am grateful to you for sending me.

Plans were begun in December to solicit contributions from drug and surgical supply companies in North Carolina to help promote our Auxiliary program, particularly on legislation and public relations.

In January I was advised to give up all activities because of a physical condition. Elizabeth Roberts, who is so understanding and fine to work with, accepted my resignation gracefully, even though it meant many extra hours of work for her. I shall always be grateful to her for her guidance and help.

MRS. JOHN EVERETT WRIGHT

* * *

Your second president-elect would also like to express her thanks for Mrs. Roberts' help in getting her started in the work of this office. From the time Elizabeth notified me that I was to represent you as president-elect, she has been a constant source of information, inspiration, and patient instruction.

Only one item of activity on my part is worthy of reporting to you. On April 23, I attended the last meeting of the year of the Durham-Orange Medical Auxiliary. It was a happy occasion for me and made me feel that it was a fine way in which to begin my year's work with the State Medical Auxiliary. After the meeting a conference was held with Mrs. B. W. Roberts and Mrs. P. P. McCain, at which time they gave me an excellent briefing on the work of the Auxiliary, its aims and its scope.

Although Mrs. Wright had made excellent plans for the things to be done before the annual meeting in May, time was just too short to put them into

practice. I shall always feel that our Auxiliary had to give up a person eminently gifted when Mrs. Wright found it necessary to resign.

MRS. ROSCOE D. McMILLAN

Report of the First Vice President and Chairman of Organization

My first activity during the year was to write the district councilors urging them to attend the fall Board meeting in Chapel Hill. At this time instructions and suggestions for organization following those sent out by the National Auxiliary were given to the councilors and county presidents. Questions were answered and help given whenever requested through the year.

It was my privilege to attend the National Board meeting in Chicago again in November and to receive further inspiration and information from the A.M.A. and its National Auxiliary officers.

During the year a card file system has been set up, in which we hope, when completed, to have the name of every member and potential member in the state.

Organization reports and maps for the National Auxiliary will be completed at the close of this meeting. Councilors have been asked to fill out new maps which were sent them, bringing the picture of their district up to date. These are to be passed on with other material to their successors.

While the aims of this committee have not been met entirely, the progress made is gratifying. I wish to express my sincere appreciation to the councilors and county presidents who have cooperated so well. Through their efforts we have at last passed the 1,500 milestone. Our membership increased this year from 1,458 to 1,646. Ground work has been laid which should result in the organization of other auxiliaries soon, but there is still much to be desired in gaining members-at-large. We feel that the new card system will be helpful in this project.

We are grateful for the organization of one new county in the Third District, Mrs. B. Lounsbury, councilor. This is Onslow County. Two new organizations are reported by Mrs. W. P. Richardson, Sixth District—Person and Franklin Counties. With the organization of Randolph County in Eighth District, Mrs. W. L. Kirby has made her district the first to be fully organized. Haywood County also has organized an auxiliary. They, through the efforts of Mrs. Joseph McGowan, Tenth District councilor, are having their organizational meeting May 23.

At this time may I introduce my councilors, who in turn will present their county presidents? Mrs. Roberts, our president, has asked that each county president give very briefly the outstanding accomplishment of her auxiliary this year.

It is to the leadership of these, and to those who have served them so well, that we are indebted for the progress made this year.

MRS. HARRY L. JOHNSON

Reports of the Councilors

First District

During the year 1951-1952 the Auxiliary to the First District Medical Society of the State of North Carolina, with Mrs. John A. Payne, III, as president, met four times. These dinner meetings were held at the same time as the First District Medical Society meetings. The average attendance was 17, an increase over preceding years, reflecting an increase in membership from 21 in 1950-1951 to 40 in 1951-1952. There are 51 doctors' wives eligible for membership in the District. With the First District comprising nine counties in Eastern North Carolina (a land area of 1,895,160 acres) with a population of 115,716, the members have welcomed these oppor-

tunities to become acquainted, and have thoroughly enjoyed the fellowship of the dinner meetings and the social hours which preceded them.

Members were informed of the objectives of the Auxiliary and urged to work toward them independently in their respective communities. They participated in nurse recruitment, secured 11 resolutions opposing involuntary health insurance, participated individually, or through other organizations of which they were members, in the work of the American Red Cross, American Diabetes Association, American Foundation for Infantile Paralysis, County Tuberculosis Association, and a local hospital auxiliary, as well as other local civic club projects.

Two members from First District attended the fall Board meeting in Chapel Hill, and the anticipated attendance from First District to the annual meeting of the State Auxiliary in Pinehurst is the largest on record.

MRS. EVERETT SAWYER

Second District

We have six active county auxiliaries in our District. We have an active membership of 121 out of 135 eligible wives. We have had an increase of 14 members in the past year. Since our District has no further organizational work to carry out, this was not one of our objectives.

As councilor I attended the fall Board meeting in Chapel Hill. We had a very good representation. I also attended the Public Relations meeting in Raleigh, acting as one of the hostesses. We had a successful District meeting and luncheon in Washington. Our state president, Mrs. B. Watson Roberts, was guest speaker. Contributing to the program were Dr. Rachel Davis, Mrs. K. B. Pace, Mrs. Leslie Lee, and Mrs. J. C. Peele.

We have worked hard in the Voluntary Health Program. As a result, 26 resolutions against medical care by the government were sent in by clubs and organizations, five by county auxiliaries, and one by our District, making a total of 32 this year.

Our financial report shows an increase of \$48 in contributions in the past year.

Contributions were as follows:

Stevens Bed	\$ 31.00
Cooper Bed	\$151.00
Sanatoria Fund	\$ 15.00
Student Loan Fund	\$ 30.00
Jane Todd Crawford	\$ 23.00

All counties observed Doctors' Day, have tried to follow the program suggested by the state chairman, have participated in all of the community drives, worked on nurse recruitment, sponsored diabetic detection clinics, acted as hostesses to doctor's postgraduate courses, and sent gifts to patients in sanatoria beds; but as usual Lenoir County has done the outstanding work of the year. It could well be used as a model county auxiliary. During the past year, among many other activities, they found time to set up a scholarship fund to help a girl become a student nurse, gave \$25 to the Cancer Hospital in Lumberton for bed linens, and have acted as hostesses for four servicemen's dances. We of the Second District are very proud of them.

During the past year we have made much progress, which has been due to the splendid state leadership and to the loyalty and complete cooperation of our members. I give my sincere thanks to each member of the Second District.

MRS. E. C. RICHARDSON, JR.

Third District

There are eight counties in the Third District, of which six are organized into four auxiliaries. Onslow County was newly organized in November, 1951.

Since organization, Onslow County has had two meetings. There are nine members of an eligible 12.

A contribution was made to the Cooper Bed. Three subscriptions to *Today's Health* were sold. Four committees correspond to the State Auxiliary. Doctors' Day was observed by a dinner served to the members of the County Medical Society by the auxiliary. Members participated in four drives. A gift was sent to the guest in each sanatorium bed. Auxiliary members have made a project of finding a physician for patients whose doctor is not readily available, and they have also helped civic clubs with county projects. During the five months since organization, the Onslow County Auxiliary has been a busy one. Congratulations and good luck to the newest auxiliary in the Third District!

Reorganized Sampson County had its first birthday report in April, 1952. Four meetings were held. There are 14 members out of 18 eligible wives. A contribution was made to the Jane Todd Crawford Memorial Fund. Ten committee chairmen correspond with the State Auxiliary. Program topics included Public Relations, Hospital Guild and Public Health Dentistry. Doctors' Day was observed by a dinner party, and each doctor received a carnation. A packet prepared by the National Education Campaign was sent to the P. T. A., Nurses' Association and A.A.U.W. Members participated in three drives. A gift was sent to the guest in the Cooper Bed. A dance was given for the hospital staff. Ice cream molds were served on the Christmas trays of all hospital patients. The Sampson County Auxiliary has been busy, too. Keep up the splendid work!

The Columbus County Auxiliary is aging. With 100 per cent membership, it is as active as any three year old. Contributions were sent to the Sanatoria, Student Loan, and Jane Todd Crawford Memorial Funds. Nineteen subscriptions to *Today's Health* were sold, of which six are in doctors' offices and six in the schools. Eight committee chairmen correspond with the State Auxiliary. Program topics included our local Hospital Needs, Dr. Albert Schweitzer—the Great Medical Missionary, State Provisions for Medical Indigents, Welfare Work in Columbus County, book review of Santa Claus M.D. The National Education Campaign packet was sent to the P.T.A., the A.A.U.W., and the Nurses' Association. Twenty-six resolutions against government controlled medical programs were sent, including that of the Auxiliary. Five pictures of "The Doctor" were hung, making a total of 16 in two years. Members participated in four drives. A gift was sent to the guest in each sanatorium bed. Health insurance was encouraged through the civic clubs as well as in membership!

New Hanover County, the old lady of the Third District, is pushing to its twenty-fifth anniversary, with three years to go. Eight meetings have been held. There are 52 members of an eligible 61. Contributions were made to the Cooper Bed and the Jane Todd Crawford Memorial Funds. Eleven committee chairmen correspond with the State Auxiliary. Program topics included Needs of the County Sanatorium, Experiences of a Missionary in the Far East, and Medical Education in North Carolina. In observance of Doctors' Day, an editorial was written for the two local newspapers. Members participated in eight drives. A gift of Coronet was sent to the guest in each sanatorium bed. Fifty subscriptions to *Today's Health* were distributed from the county, of which 17 were sold through the Auxiliary. Active assistance was given to the medical society in making the fifth annual medical symposium a success. A new local project was effected by a benefit bridge to raise funds for a master radio set as a gift to the new county tuberculosis sanatorium. A joint meeting sponsored by the North Carolina Sorosis and arranged by a committee of Auxiliary members was held. Dr. Reese Berryhill was the speaker. Another busy county!

Of the unorganized counties in the Third District, no word or interest has been evident from Duplin County. It has been discovered that from Bladen County there are several doctors' wives actively interested enough to join the neighboring auxiliary in Robeson County (Fifth District). Some day, perhaps, this small county will organize its own auxiliary.

MRS. JAMES B. LOUNSBURY

Fourth District

The Fourth District, composed of Edgecombe-Nash, Greene, Halifax, Johnston, Northampton, Wayne, and Wilson Counties, had 150 paid members and one unorganized county—Warren.

I attended five county meetings and made personal contacts with all counties. The Davis Cup, our permanent trophy, was displayed at each visit. An inspirational District meeting with our state president, Mrs. B. W. Roberts, as speaker, was held October 25, 1951, in Goldsboro, at which the year's plan of work was outlined.

Meeting quarterly, all counties followed the state program, with special emphasis on Civil Defense and the A.M.A. Educational Campaign.

Auxiliaries were instrumental in staffing successful bloodmobile units. Wayne conducted an outstanding project in securing and staffing the unit in Goldsboro. Wilson won community recognition. Other counties cooperated on a smaller scale.

Edgecombe-Nash continued their A.M.A. Educational Campaign by cooperating with their medical society in an essay contest. Visits were made in 21 white and Negro high schools of the two counties, and 1,500 pamphlets distributed. One hundred fifty-one essays were submitted and \$500 in cash prizes awarded. Physicians and auxiliary members spoke in some of these schools. Johnston began another campaign with a Speaker's Bureau being used by P.T.A. groups and civic clubs. A total of 1,800 pamphlets were distributed in the district; 20 pictures of "The Doctor" framed; and 12 resolutions sent in.

Attractive quarterly news letters were published by Johnston and Edgecombe-Nash Counties. Johnston also edited an informative year book.

Mrs. M. V. Jackson led Johnston's 18 members in awarding their annual local nurse's scholarship of \$300. This small but very active auxiliary served as hostesses for the three day formal opening of their new hospital and received special honors on Dedication Day. They sewed for the hospital, equipped the nurses' home kitchen, and decorated the hospital with flowers.

Wayne's 43 members, with Mrs. Harold E. Wolfe, president, sold 50 *Today's Health* subscriptions. The recordings of dramatized health stories won last year in the national *Today's Health* contest were used by county schools in health education programs. Books were given to the Doctors' Library on Doctors' Day.

Mrs. J. H. Cutchin, Jr., directed 21 members of the Halifax-Northampton Auxiliary in their traveling library service to Roanoke Rapids Hospital patients. They assisted as hostesses in the formal opening of their Community Clinic.

Greene continued organizational work, with Mrs. W. W. Whittington as president of the five members.

Wilson's 29 members—Mrs. C. L. Cubberly, Jr., president—was active in extensive civic work, in honoring new student nurses, and in a Doctors' Day dinner party.

Edgecombe-Nash with 34 members—Mrs. J. C. Brantley, Jr., president—was outstanding in public relations and the A.M.A. Educational Campaign, and gave \$125 to the Cooper Bed Fund.

All counties visited and gave gifts to our Cooper Bed guest. Three hundred thirty-five dollars was

donated to the Endowment Fund. Doctors' Day celebrations included news editorials, the presentation of red carnations, gifts, and dinner parties. As community leaders, auxiliary members promoted better public relations as directors of many types of drives and campaigns.

MRS. LEON ROBERTSON

Fifth District

The membership of the Fifth District has increased from 144 to 158 out of a possible membership of 190. However, the number of auxiliaries remains the same—seven organized and two unorganized.

It is encouraging to note that the Richmond County group has ten members at large who are interested in reorganizing upon the completion, in the near future, of the new county hospital.

Chatham County has one member-at-large. The other six doctors' wives in this group did not respond to any of the three inquiries made.

The organized counties have increased their donations to the following funds: Stevens Bed, Student Loan, Sanatoria, and Jane Todd Crawford Memorial.

These auxiliaries have participated in the following drives: Red Cross, Cancer, Heart, Polio, Community Chest, Girl Scouts, Boy Scouts, and Tuberculosis Seal Sale.

These counties have also worked actively with the A.M.A. Educational Campaign for voluntary health insurance, and have endeavored to promote good public relations between the medical profession and the public.

Special projects sponsored are as follows: Lee County gave nine pairs of pajamas to the Sanatorium at McCain at Christmas time.

Cumberland County honored their doctors with a dinner and editorials in the papers on Doctors' Day.

Scotland County furnished a Negro family of 13 members with food, clothing, and toys at Christmas time.

Harnett County assisted with Girl and Boy Scout drives.

Robeson County served as hostesses for the dedication service of the North Carolina Cancer Institute.

Moore County has again prepared the entertainment for our annual meeting.

The spring meeting of the Fifth District Auxiliary was held at the Southern Pines County Club on March 27. The speakers were Mrs. R. D. McMillan, Sr., our president-elect, and Mrs. Lee Stoffel of Maxton, a member of the North Carolina Poetry Society.

It has been my pleasure to meet with three county auxiliaries during the past year: Scotland in November, Lee in December, and Robeson in February. I look forward to meeting with the others in the coming year.

MRS. R. D. CROOM

Sixth District

There are nine counties in this district. The four unorganized counties were written to and visited many times this year in the hope that they would organize auxiliaries. This has been a rewarding year indeed, since two counties have organized and another group which was already organized has adopted a constitution and made plans to become an active auxiliary rather than just a social organization. The two unorganized counties are working now on plans for joining our ranks soon. The two newly organized counties are Franklin and Person. These two groups have just gotten underway, but they have elected their officers and are making plans for next year. Mrs. James Bradsher is president of the Person County Auxiliary and Mrs. J. M. Lloyd of the Franklin County Auxiliary. The Alamance-Caswell group, with Mrs. S. F. Scott as

president, had two regular meetings this year and a dinner meeting with a guest speaker, honoring the doctors on Doctors' Day.

Durham-Orange, with Mrs. Kenneth Brinkhous as president, has had three meetings, with speakers. Members have served as chairmen of such local drives as the Diabetic Detection Drive, Heart Drive, Cancer Drive, Red Cross Drive, and others. Members have participated in all local drives, have worked in three hospital auxiliaries, and the Durham members collected 17,000 specimens for diabetic detection. The Durham-Orange group served as hostesses to the fall Board meeting held in Chapel Hill, and mailed the Auxiliary newsheet to all members.

The Wake County Auxiliary, with Mrs. C. T. Wilkinson as president, had nine program meetings, had chairmen corresponding to state chairmen, issued a year book, and observed Doctors' Day with a barbecue supper. In addition to participating in drives and civic affairs, this group promoted art in the schools, worked with spastic children, donated money to the American Cancer Society Terminal Patients Home in Lumberton, and worked with the Rex Hospital Guild. Twenty-six Auxiliary members gave over 136 hours to the bloodmobile. The public relations group canvassed all doctors for the Community Chest with gratifying success.

The District as a whole has participated in an unusually large number of drives such as heart, diabetic detection, cancer, March of Dimes, Crippled Children, Tuberculosis Seal Sale, Bloodmobile, Community Chest, Red Cross, North Carolina Symphony, Y.W.C.A., Y.M.C.A., and P.T.A. This work has served as good public relations in our various communities. All groups remembered our guests in the three sanatoria, donated to the sanatoria bed funds, the Jane Todd Crawford Memorial, and the Student Loan Fund. On October 10 the auxiliary to the Sixth District Medical Society had a dinner meeting at Hope Valley Country Club. At this time Mrs. Clarence Gardner of Durham was elected councilor to take office in 1952. At this time also the group sent resolutions opposing socialized medicine to our congressmen.

We sincerely hope that before this time next year we will be able to report that our remaining two counties, Vance and Granville, have organized.

MRS. W. P. RICHARDSON

Seventh District

Seventh District remains, as in 1950-51, a district with two auxiliaries — Gaston and Mecklenburg. These groups carry on a very active program, following, in the main, the outline of the State Auxiliary program. Both hold regular monthly meetings except in the summer months. Both are responsible for maintaining friendly relations between individual members of the profession, and good public relations between the doctors and their communities, standing high in efforts and results.

Mecklenburg County Auxiliary maintains an active membership of 168 out of an eligible 221. Eight meetings have been held during the year (with one to follow), and the programs have been interesting and timely. The Cerebral Palsy Hospital, Medical Facilities in Mecklenburg County, Public Relations (by Mr. Leroy Cox), and Adjustment of Parents to Handicapped Children are typical of the topics presented. Two new projects initiated during the year are noteworthy—the contribution of blood to the Red Cross Blood Program in the name of the Auxiliary (in honor of Doctors' Day), and regular assistance to the Medical Library. Gifts and cards were sent to the patients in the Stevens Bed and letters to doctors overseas were human touches added. Regular observance of Doctors' Day and regular social events when doctors and their wives get together have long been a regular part of this group's program.

Heart, Polio, Red Cross, Cancer, Bloodmobile,

Y.M.C.A., Tuberculosis, and Community Chest drives were assisted by the members of this group. In general, this auxiliary functions along the lines of the state organization and carries out their programs and projects with regularity and ease, to the benefit of the profession and the community.

Gaston Auxiliary maintains a membership of 43 of an eligible 52. They will hold nine meetings during the year and have been very active in every phase of the Auxiliary's program. There have been seven programs of interest — Home Nursing for Civil Defense, Hospital Needs in Regard to a Hospital Auxiliary, Tuberculosis Program in Gaston County, Symptoms and Progress of Polio, Scope of the County Health Department, and Development of the Social Welfare State (by Dr. Frontis Johnston of Davidson), an open meeting with lay guests and, Nurse Recruitment. This list indicates that the group is working with the State Auxiliary in every phase of its work, and also is working with the profession at the local level.

In the community, the public relations maintained by this group seem worthy of note: four doctors' wives (of a possible 16) have been chosen "Woman of the Week" (a feature of the local paper)—a larger percentage than from any other group or profession. Members of this group head the Cancer Unit, the Christian Service Unit of the Memorial Hospital, the city-wide Beautification Committee, the Heart Committee. Members serve on the Girl Scout Board, the Red Cross Board, the Tuberculosis Board, and others. Assistance was given the Red Cross, Cancer, Girl Scouts, Heart Fund, Polio and Crippled Children Seal Sale in their respective annual campaigns for funds. They sent a contribution to Oteen, through the War Mothers, to be used by them for some patient. The sum of \$125 was used to equip patients' rooms at the new hospital with lovely pictures.

Gaston extended Lincoln County an invitation to join them in Auxiliary work. To date, this invitation has not been accepted. The Councilor attempted to organize an Auxiliary in Union and Stanly Counties, with no results to date. There are, approximately, 426 eligible wives in the Seventh District, and there are 211 active members of a local auxiliary. While this is virtually 50 per cent membership, it is not the high percentage that should be shown in organized auxiliaries.

MRS. R. S. CLINTON

Eighth District

The Eighth District is composed of seven organized auxiliaries: Guilford, Rockingham, Surry-Yadkin, Wilkes-Alleghany, Forsyth-Stokes, Ashe-Watauga, and Randolph. Randolph was organized in March, 1952, and with this auxiliary, the Eighth District is now 100 per cent organized. We consider this fact one of our main accomplishments of the year.

Guilford Auxiliary has a membership of 120. They sponsored the Guilford County Mental Hygiene Clinic and contributed \$75 for its library. They assumed responsibility for six showings of mental hygiene films. One of the outstanding accomplishments of this auxiliary was a year's schedule of radio programs on Health Education, consisting of 15 minute programs five days a week. They also contributed \$115 to the Bed Funds. Doctors' Day was celebrated with a supper and square dance, and a coca-cola and card party was given for new members.

Surry-Yadkin Auxiliary has 15 members. They worked actively for Voluntary Health Insurance vs. Compulsory Health Insurance, and took part in a nurse recruitment campaign. Each doctor was sent a red carnation with a note on Doctors' Day. Their members made health talks before various organizations.

Rockingham has 22 doctors' wives eligible for

membership and a paid membership of 22. They contributed to the McCain Bed Fund and Student Loan Fund and observed Doctors' Day with a dinner party.

Wilkes-Alleghany also has 15 doctors' wives eligible for membership and a paid membership of the same number. They observed Doctors' Day, and, although their group is small, each member has been most cooperative in helping to foster good will between their own members and the general public.

Forsyth-Stokes has a paid membership of 125. They had four interesting meetings and two social events during the year. A year book was published this year for the first time. The doctors were entertained on Doctors' Day with a dinner dance and bingo party. Public relations work was stressed—19 subscriptions to the *Bulletin* sold—and the group worked as a unit in the Toy Shop project. They contributed \$178.07 to the Bed Funds, and \$203.07 to the Student Loan Fund. In October they aided their medical society in entertaining the Eighth District.

Randolph, our baby auxiliary, organized in March, with 100 per cent paid membership. We are expecting to hear good news of this auxiliary in the future.

In addition to becoming 100 per cent organized this year, the Eighth District has had a gain of 81 members. In 1951 the district contributed \$218 to the Bed Fund and this year the contribution was \$343.07. In 1951 the contribution to the Student Loan Fund was \$76.50 and this year was \$213.07.

A successful District business meeting and tea were held in October in Winston-Salem, with approximately 40 members attending. Approximately 15 members attended the fall Board meeting in Chapel Hill.

MRS. W. L. KIRBY

Ninth District

The Ninth District includes nine counties, with five organized county units. There is only one unorganized county—Avery; and one, Davidson County, remained inactive. We trust both counties will have members attending the state convention, who will become inspired to organize and thus make Ninth District 100 per cent organized and doing its part to make the State Auxiliary 100 per cent. There are 199 eligible doctors' wives in the District, with 144 paid members. After the convention, tabulation will probably show more paid members for Ninth District.

As counselor, I presided at a Ninth District meeting held in Hickory, with Catawba County Medical Auxiliary as hostess; Mrs. Harry L. Johnson of Elkin, first vice president, was guest speaker. Following the business session, the doctors' wives were entertained at a lovely tea at the home of Dr. and Mrs. James Whaley. While attendance was fair, we wish more doctors' wives would make plans to attend the fall District meeting, which will be the starter for Auxiliary activities for the year.

The organized county units no doubt have promoted good will among the doctors' families. As Auxiliaries they shared and contributed to the State Auxiliary project—five Auxiliaries contributed a total of \$68.00 to the Stevens Bed Fund; three contributed to the Jane Todd Crawford Memorial Fund a sum of \$19.00. These contributions all showed an increase. The subscriptions to *Today's Health* fell to 33.

During the year all auxiliaries participated in community drives (Red Cross, Cancer, Crippled Children, Polio, Community Chest), with Burke County Auxiliary fixing up 4,700 letters for the T.B. Seal Sales letter. Doctors' wives are active in all these drives.

Doctors' Day was celebrated by all county auxiliaries. Catawba County had a picnic for doctors and

wives. The most outstanding activity for the Catawba County Medical Auxiliary was the making of hundreds of cancer bandages of different types for the community. The bandages were made by the group meeting in different homes, then sterilized and distributed to hospitals and homes where there were bed-ridden cancer patients. Catawba County was hostess to the Ninth District Medical Society at their meeting.

Burke County considered their outstanding achievements a revision of local medical auxiliary constitution and by-laws; the functioning of all officers and chairmen of committees in conformity with suggestions by state and national organizations; fuller participation of members in auxiliary activities with splendid cooperation of its 32 paid members, which is 100 per cent for Burke. The guest patient was carried 20 gifts, with a cash contribution. The local auxiliary sponsored showings of the film, "Girl in White," in high schools. For Doctors' Day there was radio and newspaper publicity, with each doctor receiving a red carnation and dinner and entertainment. A \$100 Nurse Loan Fund in the form of a scholarship has been set up. Series of radio programs received favorable newspaper publicity. The group also provided a health booth at the Burke County Fair. The annual report was published in booklet form and distributed to members at a luncheon attended by the District counselor, who installed the incoming officers.

Iredell-Alexander Medical Auxiliary had 23 of the 29 eligible doctors' wives as members. Doctors' Day was observed with a dinner for the doctors. Gifts—"a package a day" were sent daily for a week to the patients in Stevens Bed.

Rowan-Davie Medical Auxiliary increased its paid membership, with 35 of the 41 eligible doctors' wives as members. For Doctors' Day each doctor was presented a permanent personalized memo pad for his office. A bridge tournament was held every two weeks to raise funds to furnish a new play room at Rowan Memorial Hospital. The Auxiliary acted as doctors' hostesses for meetings when called upon.

Caldwell County likewise had an increase of membership, with 24 paid members. The doctors were sent red carnations in celebration of Doctors' Day. An article appeared in the local paper on Doctors' Day to acquaint the public with the occasion. Gifts were sent the patients in the Stevens Bed at Christmas. Six luncheon meetings were held during the year.

Summing up, Ninth District reports show that Auxiliary members are doing their part in promoting better public relations between the medical profession and the public, by serving as directors or volunteer workers in most community drives and campaigns.

The Burke County Year Book is worth seeing and emulating. I trust that next year will find the Ninth District 100 per cent organized, with doctors' wives in each county unit working together and enjoying their Auxiliary membership.

MRS. ALFRED A. KENT, JR.

Tenth District

The Tenth District can be truly proud of Buncombe County, where many outstanding results were achieved.

Buncombe County has 111 active members, an increase of 33 since last year. Eight meetings were held.

The Stevens Bed Fund was completed, and Buncombe Auxiliary raised \$110 at a silver tea held at the Western Carolina Sanatorium in November.

Buncombe County Auxiliary, for the second year, sponsored and raised over \$3,500 for the North Carolina Heart Association. A poster depicting the work by the Auxiliary was on display at the medical meeting.

Doctors' Day was celebrated by presenting each

of Buncombe's 200 doctors with a red carnation. Splendid newspaper and radio publicity was not forgotten. A campaign was also initiated to have all houses in Buncombe County numbered clearly, so that doctors might render better and quicker service.

Buncombe County staffed the Cancer Information Bureau every Friday.

Auxiliary members worked actively on the Blood Bank, Red Cross, P.T.A. Cancer Drive, Salvation Army, March of Dimes, Medical Library, and Community Chest.

Many members are affiliated with the Auxiliaries of St. Joseph's and Western North Carolina Memorial Hospitals.

Buncombe Auxiliary moved the large medical library to its new quarters at Western North Carolina Memorial Hospital. This represents the third move for the library.

The Stevens Bed patient was remembered at Thanksgiving, Christmas, Valentine's Day, and Easter, and visited each week by our Stevens Bed Chairman.

A successful picnic for doctors and their wives was held in July.

The president of the Buncombe County Medical Society addressed the auxiliary on public relations.

The Buncombe Auxiliary served as hostesses for the Tenth District Symposium. A coffee was held. They supplied floral decoration for the banquet.

I have worked hard to organize the rest of the district but to date have prospects of organizing only Haywood County on May 23. Madison County seems interested. We have two members-at-large from Polk County, and interested members in Cherokee and Transylvania Counties.

MRS. JOSEPH MCGOWAN

Report of the Second Vice President and Chairman of Activities

This report will only touch briefly on the progress we have made this year with regard to our four major state projects under the leadership of Mrs. Charles M. Norfleet, Jr., chairman of the Student Loan Fund; Mrs. Milton Clark, chairman of the McCain Bed; Mrs. M. I. Fleming, chairman of the Cooper Bed; and Mrs. G. M. Billings, chairman of the Stevens Bed.

During her two years as chairman, Mrs. Norfleet has brought about notable changes with regard to our Student Loan Fund. The Fund has made progress financially, and at the 1951 fall Board meeting a constitutional amendment was unanimously adopted to change the amount of the loan from \$100 to \$500 per year. This sum is considerably more useful to a student in need of aid, and it is hoped that all county auxiliaries will note this change and help to put this fund into use.

During the past year Mrs. Clark used her plan of the preceding year for providing year-round remembrances to the McCain Bed patient by assigning a certain month to each county Auxiliary. Mrs. Mildred Kea Fumrage, a registered nurse, who occupied the McCain Bed from March 11, 1951, to March 12, 1952, is continuing the cure at home until she is able to resume part-time service at the Sanatorium. She expressed her deep gratitude to the Auxiliary for the privilege of being its guest.

Mrs. Clark reports that Mrs. Fred G. Holleman of Winston-Salem is now the occupant of the McCain Bed. Prior to her illness Mrs. Holleman was a member of the North Carolina Sanatorium nursing staff. Mrs. Holleman's husband is also a patient at the hospital, so she will be most grateful for any financial assistance.

Mrs. M. I. Fleming, chairman of the Cooper Bed, reports that Dr. Francis Noblin, a member of the staff at the Eastern Carolina Sanatorium and the occupant of the Cooper Bed since May 19, 1951, is

making considerable progress. Dr. Noblin has expressed her deep appreciation for the many notes, cards, and gifts from auxiliaries and the personal visits from Auxiliary members. These kindnesses have had a beneficial effect on her morale and have been a source of encouragement in her effort to get well. Mrs. Fleming expresses her thanks to all who have let our Cooper Bed guest know that "we care."

From the first of February, 1951, until some time in December, we had as our Stevens Bed guest Dr. James Donnelly of Winston-Salem. Dr. Donnelly expressed his appreciation for the use of the bed in letters to Mrs. Billings and Mrs. Roberts. At the present time our guest is Mrs. W. C. Ramsey of Boone, a graduate nurse, who occupied the Stevens Bed for several months prior to Dr. Donnelly's admission to the hospital as a patient and occupant of the bed. Mrs. Ramsey has been pleased with all the kindnesses extended her by the auxiliaries, particularly at Christmas.

Mrs. Billings, chairman of the Stevens Bed, is happy and proud to announce that we have reached the \$10,000 goal for the Martin L. Stevens Endowment Fund. Mrs. Billings is to be commended for the valuable and faithful service she has rendered as leader of this project since the Endowment Fund was established in 1944, and each member of the State Auxiliary is very pleased, I am sure, that another one of our dreams has become a reality.

A complete financial report of our activities will be made in the treasurer's report.

I want to thank Mrs. Norfleet, Mrs. Clark, Mrs. Fleming, and Mrs. Billings for the splendid leadership they have given our project during the two years of my term of office as second vice president; and to each county auxiliary the entire Activities Committee says: "Thank you for your cooperation and support, without which there would be no progress in the worth-while things the Auxiliary is trying to do."

MRS. J. C. PEELE

Cooper Bed Chairman

Our guest is Dr. Frances Noblin. I am glad to report that Dr. Noblin is making progress. During the winter she had considerable trouble with her eyes and found it necessary to go to Durham for treatment, and a change of glasses.

Many auxiliaries have written, sent gifts of various kinds, and called on our guest. All have a beneficial effect on her morale and encouraged her effort to get well.

The following is a brief outline of the activities of one auxiliary:

"In November, 1951, a 'get-well' card with a pretty handkerchief was sent to our guest, Dr. Frances Noblin. We received a lovely note of appreciation from her.

"For a Christmas gift in December, she was sent a five-dollar gift certificate from Stephenson Music Company in Raleigh. She wrote a beautiful note of thanks telling us how much she was enjoying the records she had selected with this gift.

"At the March meeting of the auxiliary, the Finance Committee recommended that seventy-five dollars be sent to the Cooper Bed Fund."

Many other auxiliaries have done similar work, and I wish to express my sincere thanks for each and every remembrance in every way showing our guest that "we care."

MRS. M. I. FLEMING

McCain Bed Chairman

Mrs. Kildred Kea Fumrage, occupant of the McCain Bed since March 11, 1951, was discharged March 12, 1952, after several months of well tolerated exercise. She is continuing the cure at home until she is able to resume part-time service at the sanatorium. She has expressed her deep gratitude

to the Auxiliary for the privilege of being its guest.

Mrs. Fred G. Holleman of Winston-Salem was recommended by Mrs. Willis and the medical staff as the new occupant of the McCain Bed. Prior to her illness, Mrs. Holleman was a member of the North Carolina Sanatorium nursing staff. Her prognosis is good, and she should be ready for discharge in approximately one year. Mrs. Holleman's husband is also a patient at the hospital, so she will be most grateful for any financial assistance.

MRS. MILTON CLARK

Stevens Bed Chairman

Our first patient this year was Dr. James Donnelly from Winston-Salem. In the fall he recovered sufficiently to return to his practice. He wrote very grateful notes of thanks after his return home.

Mrs. W. C. Ramsey came back to the bed in October. She was in the Stevens Bed last year. Mrs. Ramsey was an operative case and I understand is doing nicely. She is a graduate nurse and the mother of two young children—a very worthy patient who is most grateful for all that has been done for her.

We followed our usual procedure of remembering the occupants with notes, cards, gifts, and an occasional visit. At Christmas many of the auxiliaries sent lovely gifts and money.

This year, since we were so near the endowment goal, I, as chairman, sent out letters to all the auxiliaries and the results were very gratifying. The Martin L. Stevens Endowment Fund was completed in April, 1952.

I want to thank all the Stevens Bed chairmen and their auxiliaries for their excellent cooperation, and I'd like to add that, although the endowment is completed, we have in the bed a patient who needs our help, not only at Christmas, but all through the year.

MRS. G. M. BILLINGS

Student Loan Fund Chairman

I regret to say I have not been able to put forth a real effort for the Student Loan Fund this year, but am proud to announce that total contributions from 17 out of 45 county units amount to \$343.08, and I must ask permission here to congratulate Forsyth County Auxiliary (my own) for their very generous gift of \$203.08.

May I take this opportunity to thank each auxiliary for remembering this cause without any prodding? I shall thank each one personally, but if you will convey my appreciation to your group until I can get a note of thanks to them, I shall be grateful.

Let us each put forth a real effort to let the facts about this available money be known in our respective communities. It is on hand, for a really worthwhile cause, and we would so like to have it in use.

Contributions by Auxiliaries to the Student Loan Fund are as follows:

Buncombe County—\$5.00; Burke County—\$15.00; Caldwell County—\$5.00; Cumberland County—\$5.00; Forsyth County—\$203.08; Gaston County—\$25.00; Guilford County—\$5.00; Hoke County—\$5.00; Iredell-Alexander Counties—\$10.00; Lenoir County—\$10.00; Moore County—\$10.00; Nash-Edgecombe Counties—\$5.00; Robeson County—\$5.00; Rockingham County—\$5.00; Tri-County—\$15.00; Wake County—\$5.00; Wayne County—\$10.00. Total—\$343.08.

MRS. C. M. NORFLEET, JR.

Report of the Recording Secretary

Transactions of all meetings held during the year 1951-1952 have been recorded and placed on file.

MRS. H. K. HERRIN

Report of the Corresponding Secretary

I beg to submit herewith my report for the year beginning May 1951 to May 1952:

All letters requested for the year have been duly written; I also assisted in addressing the newsheets.

I attended the fall Board meeting held in Chapel Hill.

A trip was made to Pinehurst to complete arrangements for the North Carolina State Medical Auxiliary annual meeting to be held May 5 through May 7.

A cooperative spirit has been rendered to the president during my tenure of office.

MRS. ALBERT H. POWELL

Report of the Treasurer

The report of the treasurer's records for the year 1951-1952 is submitted herewith. All accounts have been received, recorded, and disbursed according to the By-Laws.

My thanks to the president, Mrs. B. W. Roberts, to each councilor, each member of the Executive Board, and to the presidents and treasurers of the county auxiliaries for their splendid cooperation.

Hereto is appended the auditor's report covering in detail the activities of the treasurer's office for the past year.

MRS. E. C. JUDD

Auditor's Report

Mrs. E. C. Judd, Treasurer
The Auxiliary to the Medical Society
of the State of North Carolina
2108 Woodland Avenue
Raleigh, North Carolina

Dear Madam:

In accordance with your request, we have examined the books and records of the Auxiliary for the fiscal year ended June 30, 1952, and submit herewith the following statements:

EXHIBIT A—Balance Sheet

EXHIBIT B—Summary of Receipts and Disbursements

Schedule B-1—General Expense Fund—
Receipts and Disbursements

Schedule B-2—Sanatoria Bed Fund—
Receipts and Disbursements

Schedule B-3—McCain Endowment Fund—
Receipts and Disbursements

Schedule B-4—Martin L. Stevens Endowment Fund—
Receipts and Disbursements

Schedule B-5—George M. Cooper Endowment Fund—
Receipts and Disbursements

Schedule B-6—Student Loan Fund—
Receipts and Disbursements

We inspected the securities on hand and obtained confirmation from the depository in verification of bank balances. Your records were found to be in excellent condition.

Certificate

We certify that, in our opinion, the accompanying statements fairly reflect the financial condition of the Auxiliary at June 30, 1952, and the results from operations for the year then ended, upon the basis of accounting records consistently maintained.

Respectfully submitted,
R. L. STEELE & CO.
By R. L. Steele, C.P.A.

Exhibit A
Balance Sheet
June 30, 1952

ASSETS		Total	General Expense Fund	Sundarium Red Bond Fund	McCain Endowment Fund	Martin L. Stearns Endowment Fund	George M. Cooper Endowment Fund	Student Loan Fund
Cash in Bank—(Exhibit B)		\$ 3,913.64	\$635.44	\$231.99	\$ 746.37	\$ 214.45	\$ 493.19	\$1,592.23
Investments: (at Cost)								
U. S. Defense Savings Bonds dated 10-1-41 Series F Mature 12 years from date	Maturity Value \$ 2,800.00	2,072.00			2,072.00			
U. S. War Savings Bonds dated 6-1-43 Series F Mature 12 years from date	1,500.00	1,110.00			1,110.00			
U. S. War Savings Bonds dated 6-1-44 Series F Mature 12 years from date	500.00	370.00			370.00			
U. S. War Savings Bonds dated 9-1-43 Series F Mature 12 years from date	325.00	2 050				240.50		
U. S. War Savings Bonds dated 4-1-45 Series G 2½% interest payable semi-annually	1,000.00	1,000.00				1,000.00		
U. S. War Savings Bonds dated 6-1-45 Series F Mature 12 years from date	500.00	370.00			370.00			
U. S. War Savings Bonds dated 6-1-45 Series F Mature 12 years from date	1,000.00	740.00						740.00
U. S. War Savings Bonds dated 6-1-47 Series G 2½% interest payable semi-annually	1,000.00	1,000.00				1,000.00		
U. S. War Savings Bonds dated 6-1-47 Series F Mature 12 years from date	3,500.00	2,590.00			1,850.00		740.00	
U. S. Savings Bonds dated 7-1-48 Series G 2½% interest payable semi-annually	2,000.00	2,000.00				2,000.00		
U. S. Savings Bonds dated 2-1-49 Series G 2½% interest payable semi-annually	2,000.00	2,000.00				2,000.00		
U. S. Savings Bonds dated 2-1-49 Series F Mature 12 years from date	1,500.00	1,110.00			1,110.00			
U. S. Savings Bonds dated 6-1-49 Series F Mature 12 years from date	2,000.00	1,480.00			1,480.00			
U. S. Savings Bonds dated 7-1-50 Series F Mature 12 years from date	2,000.00	1,480.00			1,480.00			
U. S. Savings Bonds dated 7-1-50 Series G 2½% interest payable semi-annually	2,000.00	2,000.00				2,000.00		
U. S. Savings Bonds dated 7-1-50 Series F Mature 12 years from date	3,000.00	2,220.00					2,220.00	
U. S. Savings Bonds dated 6-1-51 Series G 2½% interest payable semi-annually	1,000.00	1,000.00				1,000.00		
U. S. Savings Bonds dated 6-1-51 Series F Mature 12 years from date	1,000.00	740.00					740.00	
U. S. Savings Bonds dated 6-1-52 Series J Mature 12 years from date	2,000.00	1,440.00					1,440.00	
U. S. Savings Bonds dated 6-1-52 Series K 2.76% interest payable semi-annually	1,000.00	1,000.00				1,000.00		

ASSETS		Total	General Expense Fund	Sanatoria Bed Fund	McCain Endowment Fund	Martin L. Stevens Endowment Fund	George M. Cooper Endowment Fund	Student Loan Fund
Total Investments	\$31,625.00	25,962.50			9,842.00	10,240.50	5,140.00	740.00
TOTAL ASSETS		\$29,876.14	\$635.44	\$231.99	\$10,588.37	\$10,454.95	\$5,633.19	\$2,332.20
SURPLUS		\$29,876.14	\$635.44	\$231.99	\$10,588.37	\$10,454.95	\$5,633.19	\$2,332.20

Exhibit B
Summary of Receipts and Disbursements
Year Ended June 30, 1952

	Cash Balance 7-1-51	Receipts	Disbursements	Cash Balance 6-30-52
General Expense Fund (Schedule B-1).....	\$ 931.92	\$2,479.00	\$2,775.48	\$ 635.44
Sanatoria Bed Fund (Schedule B-2).....	245.98	827.82	841.81	231.99
Wachovia Checking Account	1,177.90	3,306.82	3,617.29	867.43
McCain Endowment Fund (Schedule B-3).....	626.08	120.29		746.37
(Wachovia Savings Account)				
Martin L. Stevens Endowment Fund.....	296.92	917.53	1,000.00	214.45
(Schedule B-4) (Wachovia Savings Account)				
George M. Cooper Endowment Fund.....	833.71	1,099.48	1,440.00	493.19
(Schedule B-5) (Wachovia Savings Account)				
Student Loan Fund (Schedule B-6)	1,222.11	370.09		1,592.20
(Wachovia Savings Account)				
TOTAL ALL FUNDS (Exhibit A).....	\$4,156.72	\$5,814.21	\$6,057.29	\$3,913.64

Schedule B-1
General Expense Fund
Receipts and Disbursements
Year Ended June 30, 1952

Balance on Deposit—July 1, 1951.....	\$ 931.92	
Receipts:		
Dues 1951-1952		
(1646 members)	\$1,646.00	
Dues 1951-1952		
(½ to Sanatoria Bed Fund) ..	823.00	
Gaston County Medical		
Auxiliary	10.00	2,479.00
		<u>3,410.92</u>

Disbursements:		
National Dues		
(1646 members)	1,646.00	
Stationery, Postage, Printing		
and Other Office Expense....	843.48	
Contributions and Gifts	200.00	
Auditing Fee	50.00	
Memberships	20.00	
Refund—Gaston County		
Medical Auxiliary	10.00	
Rent Safe Deposit Box	6.00	2,775.48

Balance on Deposit—June 30, 1952.....\$ 635.44
 (Exhibit B)

Schedule B-2
Sanatoria Bed Fund
Receipts and Disbursements
Year Ended June 30, 1952

Balance on Deposit July 1, 1951.....	\$ 245.98	
Receipts:		
Dues 1951-1952 (1646 members		
@ \$1.00; ½ to General Fund) ..	\$823.00	
Dr. Frances Noblin	4.82	827.82
		<u>1,073.80</u>

Disbursements:

N. C. Sanatorium	192.50	
Western N. C. Sanatorium.....	193.97	
Eastern N. C. Sanatorium.....	223.35	
Transfers:		
McCain Endowment Fund—		
Schedule B-3	77.33	
Martin L. Stevens Endowment		
Fund—Schedule B-4	77.33	
George M. Cooper Endowment		
Fund—Schedule B-5	77.33	841.81
Balance on Deposit June 30, 1952.....	\$ 231.99	
(Exhibit B)		

Schedule B-3
McCain Endowment Fund
Receipts and Disbursements
Year Ended June 30, 1952

Balance in Savings Account July 1, 1951...	\$ 626.08	
Receipts:		
Transferred from Sanatoria Bed		
Fund—Schedule B-2	\$ 77.33	
Share Commission on Today's		
Health Magazine	25.33	
Savings Account Interest	12.63	
Contribution	5.00	120.29

Balance in Savings Account June 30, 1952...\$ 746.37
 (Exhibit B)

Schedule B-4
Martin L. Stevens Endowment Fund
Receipts and Disbursements
Year Ended June 30, 1952

Balance in Savings Account July 1, 1951.....\$ 296.92

Receipts:

Contributions	\$582.23	
Interest on Investments	225.00	
Transferred from Sanatoria Bed Fund—Schedule B-2	77.33	
Share Commission on Today's Health Magazine	25.33	
Savings Account Interest	7.64	917.53
		1,214.45

Disbursements:

U. S. Savings Bond—Series K—dated 6-1-52	1,000.00
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Balance in Savings Account June 30, 1952....\$ 214.45

Schedule B-5**George M. Cooper Endowment Fund****Receipts and Disbursements****Year Ended June 30, 1952**

Balance in Savings Account July 1, 1951.....\$ 833.71

Receipts:

Contributions	\$977.84	
Transferred from Sanatoria Bed Fund—Schedule B-2	77.33	
Share Commission on Today's Health Magazine	25.34	
Savings Account Interest	18.97	1,099.48
		1,933.19

Disbursements:

U. S. Savings Bonds—Series J—dated 6-1-52—Face \$2,000.00	1,440.00
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Balance in Savings Account June 30, 1952....\$ 493.19

Schedule B-6**Student Loan Fund****Receipts and Disbursements****Year Ended June 30, 1952**

Balance in Savings Account July 1, 1951.....\$1,222.11

Receipts:

Contributions	\$348.08	
Savings Account Interest	22.01	370.09

Balance in Savings Account June 30, 1952....\$1,592.20

Report of the Finance Committee**Budget 1952-1953**

We, the Finance Committee of the Woman's Auxiliary to the Medical Society of North Carolina, submit the following budget for 1952-1953, based on collecting dues of \$2.00 from 1,700 members.

Mrs. Roscoe D. McMillan, President-Elect

Mrs. Harry L. Johnson, First Vice President

Mrs. E. C. Judd, Treasurer

President's office (including corresponding secretary)	\$ 100.00
Printing, mimeographing, and typing (including 2,000 membership cards)	500.00
Auditing treasurer's records	50.00
Envelopes and postage for mailing membership cards	100.00
Safety bank box—rent for one year	6.00
Chairman of past presidents	5.00
President-elect (\$50.00 to be used when attending National Board meeting)	65.00
First vice president and councilors	100.00
Second vice president and activities chairman	35.00
Recording secretary	15.00
Treasurer	100.00
Chairman of Standing Committees:	
Public Relations	25.00
Program	25.00
Legislative	25.00

Press and Publicity	10.00
Today's Health	5.00
Bulletin	2.00
Scrap Book	2.00
Historian	5.00
Memorials	5.00
Research	10.00
Revisions	10.00
Civil Defense	10.00
Movies and Radio	10.00
News Sheet	100.00
Miscellaneous	50.00
Bonding the treasurer for 3 year policy	281.25
Membership dues N. C. Health Council	10.00
Membership dues N. C. Family Life Council	10.00
Directory N. C. Health Council	2.00
National Hand Book, 100 copies	35.00
Four delegates to A.M.A. Convention, \$25.00 each	100.00
Sanatoria Beds	750.00
Dues to A.M.A. Auxiliary members	1,700.00
	\$3,258.25

General Fund Balance	\$ 635.44
Sanatoria Fund Balance	231.99
Estimated Dues	3,400.00

Total

Balance

Report of the Historian

In keeping with our increasingly high standards, this has been a truly successful Auxiliary year.

The accomplishment of our aims and ideals has been furthered through the conscientious effort of the individual county auxiliaries and the excellent planning of our state Auxiliary officers and committee chairmen.

Reports from 24 county groups are indicative of a very busy and worth-while year—including both business and pleasure.

Eighty-one members attended the Board and training meeting in Chapel Hill last fall; and since that time, wheels have been turning in a positive direction.

Five new county auxiliaries have been formed: Onslow, Franklin, Person, Randolph, and Haywood. There is strong hope that others will follow.

Our total membership has increased to 1,646.

Sanatoria Beds and Student Loan Funds have been supported, patients have been remembered, civic and community drives have been strongly supported, and frequently staffed, by Auxiliary members.

Direct sponsorship has been given to diabetic clinics, making of cancer dressings, nurse recruitment, nurse scholarships, mental hygiene clinic, hospital activities, the Jane Todd Crawford Memorial and Doctors' Day.

Improvement of public relations and work toward voluntary health insurance together have stimulated good newspaper, radio, and movie publicity.

The Research and History Committees are compiling biographies of all physicians in North Carolina.

The Dual Card System, under the direction of Mrs. Harry Johnson, has progressed satisfactorily.

A total of \$76.00 was derived from Today's Health subscriptions.

Friendliness among auxiliary members and helpfulness to the Medical Society have become increasingly important.

In several county groups all members and prospective members have received a complete resume of the year's work.

At least one auxiliary presented an award to the civic group planning the best program on voluntary health insurance.

The *Auxiliary News*, with Mrs. C. A. McNeill, Jr., as editor, has provided interest as well as information.

A complete history of our State Auxiliary was compiled and, together with other histories, bound and filed in the archives at the central office.

Because of ill health, Mrs. J. E. Wright resigned her position as president-elect. Chosen to fill this position was Mrs. Roscoe D. McMillan, Sr., under whose most able leadership we may well expect to continue the fine work of our outgoing president, Mrs. B. Watson Roberts.

Please accept my appreciation for the privilege of serving you as Historian.

MRS. CHARLES H. GAY

Report of the Program Chairman

Program material and suggested outlines from our national program chairman, Mrs. Schafer, were put into the packets prepared for and distributed to each county president at the fall Board meeting. Brochures and pamphlets coming from national headquarters throughout the year were also forwarded.

Several individual requests for program suggestions, material, and sources of material were filled.

The summary of the Program Committee reports gives a picture of creditable cooperation throughout the state. The programs as a whole were varied and outstanding.

The following is a copy of my report to the Southern Regional chairman.

1. Number of organized counties—45.
2. Number of Auxiliaries with satisfactory cooperation of Program chairmen—a majority of them (39) reported.
3. Number of Auxiliaries having year books or program outlines—6.
4. Description of educational work by having programs on:
 - a. Health Topics—12
 - b. A.M.A. films, material, and radio—30
 - c. Social Economic Problems—22
Legislation, Voluntary Health Insurance, Public Relations
 - d. National and State Auxiliary Projects—22
5. Number of Auxiliaries having Health Days or Health Councils—none.
6. Number of Auxiliaries having Speakers' Bureaus—1.
7. Most outstanding state health project—Sanatoria Beds.
8. Most outstanding program—"The Doctor's Wife and Public Relations."

MRS. P. G. FOX

Report of the Public Relations Chairman

As state chairman of Public Relations, I recommended in the beginning that the public relations program as outlined by Mr. Cox and Mr. Barnes be followed as closely as it seemed feasible. Each county chairman was urged to continue the work already done in connection with voluntary health insurance as opposed to socialized medicine. Items 24 and 25 in the Suggested Public Relations Program were emphasized at the outset, and members of the auxiliary were encouraged to promote good will and essential discipline within and among doctors' families in order to develop public grace.

I have corresponded with the county chairmen whose names and addresses I was able to secure.

Certain organizations have used audio - visual means of health education through the schools and radio. Hospital guilds have been active in a few places. Auxiliary members have participated, for the most part, in community drives of an eleemo-

synary nature and civic programs. One organization has contributed much in promoting and operating a doctors' telephone exchange service—an effort to assure ready availability of quick medical attention whenever it may be needed.

The North Carolina Medical Auxiliary is fast becoming public relations conscious, as the Medical Society builds a strong public relations program.

MRS. D. M. ROYAL

Report of the Legislative Chairman

Since the North Carolina General Assembly was not in session during the past year, nothing has, or could be, done on the state level; but all counties have been warned to keep informed as to any new form of socialized medicine which might rear its ugly head in Washington wearing a new title.

Burke County reported the following moves which they have made this year:

1. A digest of the status of all action affecting the medical profession by the Eighty-First Congress was presented at their September meeting.

2. All members were urged to write to the representative of the American Medical Association in Washington and ask that their names be put on the mailing list for Capitol Clinic.

3. **Capitol Clinic** has been received regularly and carefully read by the Burke County's Legislative chairman. I would like to urge every county president to insist that her Legislative chairman for the coming year obtain **Capitol Clinic** and read it regularly.

The Legislative Committee of Guilford County Medical Auxiliary sponsored a resolution, which records the emphatic opposition of their Auxiliary to any form of socialized, government-supplied medical care. Copies were sent to Senators Hoey and Smith, who replied most graciously. At their annual meeting in March the Legislative chairman reported on the most important medical legislation to come before this session of Congress. The major items included in this report were:

1. Aid to medical education
2. Aid to local public health units
3. Medical care for dependents of enlisted men
4. The consolidation of hospital, medical, and health functions of the government in a Department of Health
5. The President's Commission on the nation's health needs
6. Appropriations of interest to the medical profession
7. Compulsory Health Insurance defended by Ewing.

Next year may be the most important period in the history of the medical profession; therefore we must stand ready to extend help if and when needed. But first let us prepare ourselves, by being alert, cautious, and informed.

MRS. MILLARD D. HILL

Report of the Newsheet Chairman

Our sincerest appreciation goes to the Hospital Care Association of Durham for sponsoring the *Auxiliary News* this year, and thus improving its appearance and making possible a much wider circulation. May I also express my personal appreciation to all Auxiliary members for their cooperation in helping supply the material used in this year's publications.

During the year copies have been sent to members of the State Auxiliary; Dr. Fred C. Hubbard, State Medical Society president; Dr. Street Brewer, Society president-elect; Mr. J. T. Barnes, Society executive secretary; members of our Advisory Board; the A.M.A. Auxiliary president, executive secretary, and president-elect; the Hospital Care Association; State Nurses' Association president and executive secretary; and exchange copies have been

sent to about 10 states. We have not had a sufficient number of copies to send to all states. Durham-Orange County Auxiliary has carried the responsibility this year of mailing 1,700 copies of each edition of *Auxiliary News*. To its members goes our vote of heartfelt thanks for a job well done.

General Expense Account for the Auxiliary Newsheet

Paid to commercial artist for art work	\$ 12.00
Plate made by engraver	13.00
Bulk Mailing Fee Permit for 1951	10.00
Bulk Mailing Fee Permit for 1952	10.00
Charge for mailing November newsheet	15.00
" January newsheet	15.00
" April newsheet	16.00
" June newsheet	16.00
Total	\$107.00

Personal Expenses of the Editor

Long distance phone calls	\$3.18
Stamps and postal cards	2.38
(approximately)	

\$5.56

\$112.56

MRS. C. A. McNEILL, JR.

Report of the Today's Health Chairman

I attended the Executive Board meeting held on September 26 at Chapel Hill. For this meeting I sent to our state president a typed list of instructions, sample copies of the magazine, and other materials to be placed in envelopes of all county presidents for their *Today's Health* chairman.

A few months later letters were written to the county chairmen urging them to participate in the national contest; they were also asked to place this magazine in all their local schools and libraries.

In December I received from the national headquarters renewal slips of all those whose subscriptions had expired. I sent these to the county chairmen, urging them to do their very best in securing more subscriptions. Good results were obtained.

Letters and a printed form were mailed to each chairman again in the spring to obtain their final report and suggestions. Some of the counties did not respond at all; but as a whole I was much pleased with those that did. Wayne County again secured more subscriptions than any other county. This has been her record for the past eight years. Columbus County was the first to send in her commission, and she also sent the largest commission—\$28.00. The total number of subscriptions received was 308. The commission earned has been turned over to our state treasurer, Mrs. E. C. Judd.

A booth was planned for the state meeting, advertising *Today's Health*, using an electrical display with sample copies of the magazines and other materials.

To the incoming *Today's Health* chairman, I extend my best wishes for a most successful year. And to all of those who have given me such wonderful cooperation, I extend my most sincere thanks.

MRS. CLYDE BROWN

Report of the Bulletin Chairman

There were 78 subscriptions to the Bulletin.

MRS. A. C. BULLA

Report of the Memorial Chairman

The names of thirteen departed members have been reported since May 1951. They are as follows:

Mrs. Joseph Dixon—Greenville
Mrs. R. N. Duffy, Sr.—New Bern
Mrs. Linster Duffy—New Bern

Mrs. John D. Kerr—Clinton
Mrs. M. W. Marr—Pinehurst
Mrs. R. A. Ross—Durham
Mrs. C. N. Sprinkle—Weaverville
Mrs. J. B. Whittington—Winston-Salem
Mrs. H. T. Gorham—Nashville
Mrs. D. R. Perry—Durham
Mrs. S. D. McPherson—Durham
Mrs. Adlai S. Oliver—Raleigh
Mrs. W. H. Boone—Durham

Memorials for Mrs. R. N. Duffy, Sr., Mrs. Linster Duffy, and Mrs. J. B. Whittington were sent in by their Necrology chairman and were forwarded to the North Carolina Medical Journal for publication.

MRS. HENRY STUART WILLIS

Report of the Scrapbook Chairman

Last fall I compiled and typed 50 copies of rules and suggestions for county Scrapbook chairmen. I attended the fall Board meeting in Chapel Hill. I have answered all correspondence relative to the Scrapbook, and I have kept the state Scrapbook for the year.

MRS. A. L. O'BRIANT

Report of the Research Chairman

During the year the following articles were submitted to Mrs. Charles F. Corn, chairman of Research and Romance of Medicine of the Auxiliary to the Southern Medical Association.

1. Article entitled "The Doctor's Wife" by Dr. Rachel Davis of Kinston, chairman of the Advisory Board.

2. An address entitled "Message to the Auxiliary" given to the state Medical Auxiliary by Dr. Roscoe D. McMillan.

3. The dedication address of the opening of the new nursing home for cancer patients at Lumberton, March 23, 1952, by Dr. Charles S. Cameron, Medical and Scientific Director.

4. Clippings from Community Health:

(a) The History of the North Carolina Medical Auxiliary by Mrs. Charles H. Gay.

(b) An article entitled "Better Health for Tarheels" by Dr. Robert Cadmus.

5. Burke County has begun compiling biographies of all doctors, past and present, who have practiced medicine in that county. As soon as these have been completed they will be sent for filing.

6. The Histories of Medical Women of North Carolina, which to date includes sketches of 58 of North Carolina's women doctors. I suggest that this project be continued until completed by Dr. Irma Henderson Smathers, editor. These articles have been published in *Medical Womens Journal*.

I recommend that biographies of all past, present, and future presidents of the State Medical Society be obtained and put on file as a project for the coming year.

MRS. H. C. LENNON

Report of the Civil Defense Chairman

The main project of the Civil Defense Committee for this year has been the compilation of a file of the various capabilities of the doctors' wives which would be useful should an emergency occur. The file has not yet been completed, as quite a few auxiliaries still have not sent in this information. Upon its completion, a duplicate file will be sent to Mr. E. Z. Jones, State Civil Defense Chairman in Raleigh, who expressed interest in having such a file on hand.

Each Civil Defense chairman has also been asked to urge all members of their respective Auxiliaries to take whatever refresher courses are made available to them by the Red Cross, so that they might be prepared in the event of an atomic attack.

In February, when the "Alert America" exhibit was in Winston-Salem, each Civil Defense chairman,

or the president of the auxiliary where a Defense chairman was not listed, was invited to see this exhibit. Unfortunately, because of extremely inclement weather and other personal reasons, only two members were able to come. Those of us who attended the exhibit felt that it was excellent as far as it went, but that it did not make quite the impression that the film on Civil Defense makes. We should like to urge all auxiliaries who have not been able to show this film to their groups to do so if possible at one of the meetings next year.

MRS. GEORGE T. HARRELL, JR.

Report of the Jane Todd Crawford Memorial Chairman

To inform the members of the Auxiliary of the Jane Todd Crawford Memorial, 41 letters were sent out to the county presidents, urging careful consideration of this cause. The response was most gratifying. The sum of \$81.50 was collected and sent, with a typed report, to Southern Medical Auxiliary on October 31, 1951. It gives me great pleasure to report that North Carolina ranked first in its contributions.

Additional funds, amounting to \$59.00, have been sent in to me. This amount will be turned over to the new chairman and will go into next year's report.

MRS. J. S. HIATT, JR.

Report of the Doctors' Day Chairman

Doctors' Day is fast becoming a very special day in North Carolina. Quoting from an editorial by C. R. Sumner in the Asheville Citizen-Times: "Whoever thought up the idea hit on a diller because it is something to warm the heart. This writer has no intention of sounding sentimental about the business of doctors but this is a time when the world might pause for a moment of silence as a tribute to the men and women of medicine."

This was also the sentiment in the many other editorials written about Doctors' Day this year, and, with the numerous radio talks concerning the wearing of the carnation and the significance of the day, more publicity was given this occasion than ever before. Burke County promoted a 30 minute panel discussion on the radio, with six doctors from different fields of medicine discussing the advancement of their respective fields since Dr. Long first used anesthesia.

A majority of the county auxiliaries presented carnations to the doctors, and a great many dinners and parties with most attractive programs were given.

Buncombe County, via radio and newspaper, put on a campaign to get each resident to mark his home with luminous numbers, thereby helping the doctor to give service more quickly and save precious time.

Gaston County had a most attractive printed program, explaining the origin of Doctors' Day and public relations projects for 1952, at their combination Doctors' Day-Public Relations dinner. Each member brought two guests, and a check was given the doctors to be used for buying books for the Gaston Memorial Library.

The newly formed Watauga Auxiliary added a new idea by placing flowers in church in memory of those doctors who have gone away, while Mecklenberg sent notes of remembrance to all members of their medical society who are in the armed services. The latter also, during the week preceding Doctors' Day, donated blood to the Red Cross Blood Center as a tribute to their husbands and to the medical profession at large.

MRS. RALPH L. FIKE

Report of the Special Committee

The Special Committee, appointed to investigate the invitation of the North Carolina Women's Council to the Auxiliary to the North Carolina Medical Society, begs to report that it has studied the proposed constitution and by-laws individually, in committee meetings and with the president of the State Auxiliary and the Executive Committee at their annual meeting. The opinions of the Advisory Committee to the National Auxiliary and the Advisory Committee to the North Carolina State Auxiliary were sought. Both Advisory Committees advised the Special Committee that they approved the acceptance of the invitation to send representation to the North Carolina Women's Council. Dr. Ernest D. Howard thought it a "good idea," and Dr. Rachel Davis thought the Auxiliary "could learn much and contribute much to such a Council."

Therefore, the Special Committee recommends that the Auxiliary to the North Carolina Medical Society accept the invitation of the North Carolina Women's Council for charter membership, and send a representative and alternate well instructed by the Auxiliary.

The Special Committee recommends that the representative be given the following instructions:

1. The 25 per cent membership-at-large be reduced to 10 or 15 per cent.
2. The By-laws prohibit political activity and attach a penalty for violation of Article 6.
3. The name of a woman physician be proposed for a member-at-large.
4. The representative insist that the organization be kept as simple as possible.
5. No member should serve on the Nominating Committee more than one year consecutively from any organization.
6. Representatives should not serve more than three consecutive years.
7. If any program or action is not unanimously voted for by the Council, the Council shall not go on record as publicizing the program or action.
8. Be required that By-laws be read annually.

Respectively submitted,

MRS. C. T. WILKINSON, Chairman

MRS. J. C. REECE

MRS. E. M. ROBERTSON

Recommendations of the Special Project Committee

Whereas, The Auxiliary to the Medical Society of the State of North Carolina has, during the past several years, proposed and carried out projects to pay for the upkeep of a bed in each of the State Tubercular Sanatoriums; and

Whereas, The Auxiliary has established Endowment Funds of \$10,000 for each of these three beds; and

Whereas, Two of these Endowment Funds have been completed; and

Whereas, The third one is well on its way to being completed; and

Whereas, It now appears that the Auxiliary should undertake new projects, after having made a study of the situation, has found that the following things are needy, worthwhile causes, be it therefore

Resolved, That the Medical Auxiliary does hereby go on record approving the following projects:

First, That we give financial aid to the Cancer Institute, Lumberton, North Carolina, to whatever extent the Finance Committee deems appropriate according to funds available, and that we promote an educational program to make this available service better known to the general public.

Second, That we take as a second project the writing and compiling of the biographies of all presidents of the State Medical Society.

Third, That we assume a yearly project in the Salvation Army Maternity Home and Hospital of Durham, North Carolina.

Resolved, That committees be appointed to investigate and work out the details of carrying out these projects.

MRS. THOMAS LESLIE LEE
MRS. BEN ROYAL
MRS. SIDNEY SMITH

Report of the Councilor to the Southern Medical Association

As councilor to the Auxiliary to the Southern Medical Association, I beg leave to submit the following report: Copies of the revised constitution of the Auxiliary to the S.M.A., which were adopted in Dallas, were mailed to all county presidents in North Carolina. Full information concerning the Jane Todd Crawford Scholarship Loan Fund has been mailed to the deans of the three medical schools in North Carolina.

A scrapbook of clippings from the Dallas, Texas, meeting last November has been compiled and is on the table in the Pine Room. Also on the table is a classified list by cities of all the doctors in North Carolina who are members of the Southern Medical Association and application blanks for membership.

I have kept in touch with the Jane Todd Crawford Scholarship Loan Fund, the Romance and Research in Medicine, and the Doctors' Day chairmen during the year. Their reports speak for the work in the state.

This year we are establishing the office of Vice Councilor to the S.M.A. She will serve two years and then succeed to the office of councilor. We are happy to announce that Mrs. Harry Johnson has accepted this appointment.

The forty-sixth annual meeting of the Southern Medical Association will be held in Miami, Florida, November 10-13, 1952. Plan now to take a fall vacation and attend this meeting. It will be well worth your time.

MRS. A. L. O'BRIANT

Report of the Achievement Award Chairman

This committee, composed of Mrs. John Winstead of Greenville, Mrs. Fleming Fuller, and myself, have received over 50 reports. We have valued each contribution. We wish that we had an award for every auxiliary, for each of you have really done some hard work.

It gives us great pleasure to give the following awards:

1. \$5.00—as a memorial to Leslie Lee, given by Mrs. Lee to the auxiliary doing the most to combat Socialized Medicine—won by Edgecombe-Nash.

2. \$5.00—given by Mrs. J. W. Rose to the auxiliary with greatest increase in membership—won by Buncombe County.

3. \$5.00—given by Mrs. Ralph Fike to the auxiliary making the largest contribution to the Cooper Bed Fund—won by Edgecombe-Nash.

4. \$5.00—given by Mrs. G. M. Billings to the auxiliary making the largest contribution to the Stevens Bed Fund—won by Buncombe County.

5. \$5.00—given by Mrs. B. W. Roberts to the auxiliary making the largest contribution to Student Loan Fund—won by Forsyth-Stokes.

6. \$5.00—given by Mrs. Frederick Taylor to the auxiliary sending in most resolutions against government controlled medicine—won by Cumberland County.

7. \$5.00—given by Mrs. Karl Pace to the auxiliary sending in most subscriptions to *Today's Health*—won by Wayne County.

We want to thank Dr. Rachel Davis for this lovely new cup which she wants used as an achievement award to the district. The purpose of the achieve-

ment award is to stimulate interest in and growth of the Auxiliary of the North Carolina Medical Society at the county, district, state and national levels.

Your committee had a hard time making this selection. We would like to give honorable mention to the Tenth and Fourth Districts, and for the very greatest achievement in everything we take great pleasure in presenting this cup and a check for \$25.00 to the Eighth District, Mrs. W. L. Kirby, Councilor.

MRS. GRADY DIXON

Inaugural Remarks of the Incoming President

It is with a feeling of sincere appreciation of the task ahead, and of the trust you have placed in me, that I assume the duties of this office today.

It is impossible for me to express to you how great I feel is the loss to our Auxiliary in not having Mrs. Wright to lead us this year. No president could be more fortunate, though, in the person she follows. Mrs. Wright's books are the most complete, the neatest, the best compiled, and all the other superlatives I could possibly think of. Her interest and very personality shows in everything that she has done; and I wish to express my appreciation to her for having prepared the way for me so well.

It has been my privilege to observe and work with members of the Medical Society of the State of North Carolina for the past five years, this being the sixth annual meeting I have attended. Each year has shown evidence of progress—in interest, activity, and accomplishment.

Again a new year is beginning for us, and there will be new problems to solve, new horizons to reach. Some of the old issues are not dead and will require determined, concerted effort that all may know just where we stand and what we expect to accomplish.

This is a legislative year in North Carolina and a Presidential election year in our United States. No doubt these events will add new responsibilities. We must choose the right men to represent us in our government—men of integrity of character, wisdom, and ability; who can be counted on to think clearly and act courageously on all questions.

With your help and cooperation these things can be done; without you, nothing. Only in so far as your president can carry out your wishes will the Auxiliary accomplish goals to which each one of us can point with pride.

May the One who makes all things possible for each individual guide and direct the work of this organization so that it may fulfill its purpose in such a way as to justify its being.

MRS. ROSCOE D. McMILLAN

Post-Convention Meeting of the Executive Board and County Presidents

Minutes

The Post-Convention meeting of the Executive Board and County Presidents was held around the breakfast table in the Stag Room of the Carolina Hotel in Pinehurst on Wednesday, May 7, 1952, at 9 a.m.

Mrs. B. W. Roberts called the meeting to order and introduced the new president, Mrs. R. D. McMillan, Sr., who presided.

Mrs. McMillan made the following suggestions for the new year's work:

1. That county presidents appoint their new committees as soon as possible.

2. That county presidents familiarize their auxiliaries with the Special Project Committee and its work.

3. That county auxiliaries be encouraged to send in suggestions to Mrs. Thomas Leslie Lee, chairman of the above named committee.

4. That 1952 being a "legislative year," Auxiliary members be encouraged to vote.

5. That county dues be collected at the first meeting in the fall and state dues be sent to Mrs. Judd as soon thereafter as possible.

Mrs. McMillan announced that the fall meeting of the Executive Board would be held in Chapel Hill at the new hospital.

There being no further business, the meeting adjourned.

MRS. HERMON K. HERRIN
Recording Secretary

Report of the Nominating Committee

The Nominating Committee, composed of Mrs. M. I. Fleming, Mrs. Joseph McGowan, Mrs. T. P. Brinn, Mrs. R. A. Moore, and Mrs. R. Stuart Willis, submits the following slate of officers:

President Elect—Mrs. G. M. Billings, 122 Powe Street, Morganton.

Second Vice President — Mrs. Leon Robertson, Rocky Mount.

Treasurer—Mrs. E. C. Judd, 2108 Woodland Avenue, Raleigh.

Corresponding Secretary—Mrs. J. Irving Biggs, Lumberton.

MRS. M. I. FLEMING
Chairman

ROSTER OF AUXILIARY MEMBERS

1951-1952

Mrs. Abbott, R. W.....	Goldsboro	Mrs. Avery, E. S.....	Winston-Salem	Mrs. Beasley, E. B.....	Fountain
Mrs. Adair, W. E., Jr.....	Erwin	Mrs. Aycock, E. B.....	Greenville	Mrs. Beavers, C. L.....	Greensboro
Mrs. Adams, C. N.....	Winston-Salem	Mrs. Aycock, F. M.....	Princeton	Mrs. Beavers, J. W.....	Greensboro
Mrs. Adams, H. S.....	Winston-Salem	Mrs. Aycock, Jack B.....	Stoney Point	Mrs. Beavers, W. O.....	Greensboro
Mrs. Adams, J. R.....	Charlotte	Mrs. Ayers, James S.....	Clinton	Mrs. Beckwith, C. P.....	Roanoke Rapids
Mrs. Adams, R. K.....	Morganton	Mrs. Bailey, C. W.....	Rocky Mount	Mrs. Beddingfield, Edwin T.....	Stantonsburg
Mrs. Ader, O. L.....	Walkertown	Mrs. Bailey, M. H.....	Elizabeth City	Mrs. Belcher, C. C.....	Asheville
Mrs. Aderholt, M. L.....	High Point	Mrs. Baird, Haynes.....	Charlotte	Mrs. Belk, Geo. W.....	Gastonia
Mrs. Adkins, T. F.....	Durham	Mrs. Baker, H. M., Jr.....	Lumberton	Mrs. Bell, Erick.....	Wilson
Mrs. Albright, S. L.....	Belmont	Mrs. Baker, H. M., Sr.....	Lumberton	Mrs. Bell, Ira.....	Morganton
Mrs. Alexander, A. B.....	Chapel Hill	Mrs. Baker, Lenox D.....	Durham	Mrs. Bell, L. N.....	Montreat
Mrs. Alexander, Eben.....	Winston-Salem	Mrs. Baker, T. W.....	Charlotte	Mrs. Bell, O. E.....	Rocky Mount
Mrs. Alexander, J. M.....	Charlotte	Mrs. Baldwin, W. E.....	Whiteville	Mrs. Bell, Spencer A.....	Hamptonville
Mrs. Alexander, W. M.....	McCain	Mrs. Ballew, J. R.....	Raleigh	Mrs. Belser, R. H.....	Gastonia
Mrs. Allen, George C.....	Lumberton	Mrs. Balsey, R. E.....	Reidsville	Mrs. Benbow, Edgar.....	Winston-Salem
Mrs. Alsup, W. B.....	Winston-Salem	Mrs. Baluss, John.....	Fayetteville	Mrs. Bender, J. J.....	Red Springs
Mrs. Alyea, E. P.....	Durham	Mrs. Banner, C. W.....	Greensboro	Mrs. Bender, J. R.....	Winston-Salem
Mrs. Ames, R. H.....	Greensboro	Mrs. Bardin, R. M.....	Durham	Mrs. Bennett, E. C.....	Elizabethtown
Mrs. Anders, McG.....	Gastonia	Mrs. Barefoot, G. B.....	Wilmington	Mrs. Benson, N. O.....	Lumberton
Mrs. Anderson, E. C.....	Wilmington	Mrs. Barefoot, Sherwood W.....	Greensboro	Mrs. Bentley, J. G.....	Moravian Falls
Mrs. Anderson, Henry S.....	Mocksville	Mrs. Barefoot, W. F.....	Whiteville	Mrs. Benton, George, Jr.....	Goldsboro
Mrs. Anderson, J. B.....	Asheville	Mrs. Barham, B. F.....	Asheboro	Mrs. Benton, Wayne J.....	Greensboro
Mrs. Anderson, Norman L.....	Asheville	Mrs. Barker, C. S.....	New Bern	Mrs. Berkeley, Alfred, Jr.....	Charlotte
Mrs. Anderson, Robert A.....	Ahoskie	Mrs. Barnes, Eugene.....	Hickory	Mrs. Berkeley, Wm. T.....	Charlotte
Mrs. Anderson, Wade.....	Wilson	Mrs. Barnes, J. Thomas.....	Asheboro	Mrs. Berryhill, W. Reece.....	Chapel Hill
Mrs. Andrews, J. Robert.....	Winston-Salem	Mrs. Barnes, Russell.....	Jacksonville	Mrs. Best, D. K.....	Goldsboro
Mrs. Andrews, L. A.....	Winston-Salem	Mrs. Barnes, Tiffany.....	Asheboro	Mrs. Best, Glenn E.....	Clinton
Mrs. Anthony, W. A.....	Gastonia	Mrs. Barnhardt, Albert E.....	Kannapolis	Mrs. Best, James E.....	Greensboro
Mrs. Applewhite, C. C.....	Raleigh	Mrs. Barrett, J. M.....	Greenville	Mrs. Bethel, M. B.....	Charlotte
Mrs. Arey, J. V.....	Burlington	Mrs. Barringer, A. L.....	Mt. Pleasant	Mrs. Biggs, J. I.....	Lumberton
Mrs. Armentrout, C. H.....	Asheville	Mrs. Barron, John.....	Morganton	Mrs. Billings, G. M.....	Morganton
Mrs. Armistead, D. B.....	Greenville	Mrs. Bartlett, T. R.....	Greenville	Mrs. Bingham, R. K.....	Boone
Mrs. Armstrong, B. W.....	Charlotte	Mrs. Basnight, G. J.....	Greenville	Mrs. Bird, I.....	Greensboro
Mrs. Armstrong, C. W.....	Salisbury	Mrs. Bass, R. E.....	Chadbourn	Mrs. Bittinger, C. L.....	Mooresville
Mrs. Arney, W. C.....	Morganton	Mrs. Baxter, O. D.....	Matthews	Mrs. Bittinger, S. M.....	Black Mountain
Mrs. Ashford, C. H.....	New Bern	Mrs. Baylin, George.....	Durham	Mrs. Bizzell, Edward.....	Goldsboro
Mrs. Arnold, Ralph A.....	Durham	Mrs. Baynes, Ralph.....	Hurdle Mills	Mrs. Bizzell, James.....	Goldsboro
Mrs. Atkins, S. S.....	Asheville	Mrs. Beach, C. M.....	Madison	Mrs. Bizzell, Malcolm.....	Goldsboro
Mrs. Austin, F. D., Jr.....	Charlotte	Mrs. Beall, L. L.....	Greensboro	Mrs. Black, J. R.....	Whiteville
		Mrs. Beam, Hugh.....	Roxboro	Mrs. Black, Kyle E.....	Salisbury
		Mrs. Beamer, Parker.....	Winston-Salem	Mrs. Black, P. A. L.....	Wilmington
		Mrs. Beard, G. C.....	Atkinson		

Mrs. Blackshear, T. J.....Wilson	Mrs. Broughton, A. C., Jr.Raleigh	Mrs. Chandler, E. T.....Richlands
Mrs. Blackwelder, Verne H.Lenoir	Mrs. Brown, M. S.Roanoke Rapids	Mrs. Chaplin, S. C.....Columbia
Mrs. Blair, Andrew.....Charlotte	Mrs. Brouse, I. E.....Wilmington	Mrs. Chapman, E. J.....Asheville
Mrs. Blair, J. S.....Gastonia	Mrs. Brown, C. R.....Goldsboro	Mrs. Cheek, K. M.....High Point
Mrs. Blalock, B. K.....Charlotte	Mrs. Brown, E. M.....Washington	Mrs. Cherry, J. H.....Asheville
Mrs. Blanchard, I. T.Elizabeth City	Mrs. Brown, Frank R.Greensboro	Mrs. Chesson, A. L.....Raleigh
Mrs. Blanchard, T. W.Hobbsville	Mrs. Brown, George.....Charlotte	Mrs. Cheves, W. G.....Raleigh
Mrs. Bland, Chas. A.....Louisburg	Mrs. Brown, G. W.....Raeford	Mrs. Chipman, Sidney.....Durham
Mrs. Blount, Agnes.....Farmville	Mrs. Brown, Ivan W.....Durham	Mrs. Chipman, S. S.....Durham
Mrs. Blow, R. B.....Weldon	Mrs. Brown, J. A.....Cleveland	Mrs. Choate, A. B.....Charlotte
Mrs. Blue, A. McNeill.....Carthage	Mrs. Brown, K. E.....Asheville	Mrs. Choate, Walter J.Salisbury
Mrs. Blue, Waylon.....Sanford	Mrs. Brown, L. G.....Southport	Mrs. Clapp, H. L.....Swannanoa
Mrs. Bolus, Michael.....Raleigh	Mrs. Brown, Victor E.Williamston	Mrs. Clark, Bodie T.....Wilson
Mrs. Bond, George F.....Bat Cave	Mrs. Bryan, A. Hughes.....Chapel Hill	Mrs. Clark, D. D.....Clarkton
Mrs. Bond, J. P.....Gastonia	Mrs. Buckner, J. M.....Swannanoa	Mrs. Clark, Harold S.....Asheville
Mrs. Bond, Vernard F., Jr.Winston-Salem	Mrs. Bugg, C. R.....Raleigh	Mrs. Clark, Henry T., Jr.Chapel Hill
Mrs. Bonner, John B.Elizabeth City	Mrs. Bugg, Everett I., Jr.Durham	Mrs. Clark, Milton S.....Goldsboro
Mrs. Bonner, K. P. B.Morehead City	Mrs. Buie, R. M., Jr.....Greensboro	Mrs. Clay, Thomas B.....Mayodan
Mrs. Bonner, M. D.....Jamestown	Mrs. Buie, R. M., Sr.....Greensboro	Mrs. Clayton, Eugene J.Asheville
Mrs. Bonner, O. B.....High Point	Mrs. Bulla, A. C.....Raleigh	Mrs. Cleek, T. R.....Asheboro
Mrs. Boone, Waldo W.....Durham	Mrs. Bullock, D. D.....Rowland	Mrs. Clinton, R. S.....Gastonia
Mrs. Bost, T. C.....Charlotte	Mrs. Bullock, Ernest.....Wilmington	Mrs. Cloninger, Charles.....Coonover
Mrs. Bowers, Joseph.....Pink Hill	Mrs. Bumgarner, J. R.Black Mountain	Mrs. Cloninger, Kenneth.....Newton
Mrs. Bowles, Norman.....Durham	Mrs. Bundy, W. L.North Wilkesboro	Mrs. Cobb, D. B.....Goldsboro
Mrs. Bowman, E. L.....Lumberton	Mrs. Bunn, R. W.Winston-Salem	Mrs. Cochrane, Fred R., Jr.Charlotte
Mrs. Bowman, H. E.....Aberdeen	Mrs. Burt, Samuel E.....Louisburg	Mrs. Cochran, J. D.....Newton
Mrs. Boyce, O. D.....Gastonia	Mrs. Burdette, F. M.....Southport	Mrs. Codington, H. A.Wilmington
Mrs. Boyer, Norman.....Brevard	Mrs. Burnett, C. H.....Chapel Hill	Mrs. Coffee, A. T., Jr.....Charlotte
Mrs. Boyette, D. P.....Ahoskie	Mrs. Burnette, H. O.....Randleman	Mrs. Coffey, J. C.....Salisbury
Mrs. Brabson, J. A.....Charlotte	Mrs. Burnette, H. L., Jr.Morven	Mrs. Cogdell, David M.Fayetteville
Mrs. Bradford, G. E.Winston-Salem	Mrs. Burton, C. N.....Asheville	Mrs. Cole, H. A.....Clayton
Mrs. Bradford, W. Z.....Charlotte	Mrs. Burwell, John C.Greensboro	Mrs. Cole, Walter.....Bunn
Mrs. Bradley, H. J.....Greensboro	Mrs. Busby, G. F.....Salisbury	Mrs. Coleman, G. S.....Raleigh
Mrs. Bradley, J. D.....Asheville	Mrs. Byerly, Frederick.....Winston-Salem	Mrs. Combs, Fielding.....Winston-Salem
Mrs. Bradshaw, H. H.Winston-Salem	Mrs. Byerly, W. G.....Lenoir	Mrs. Combs, J. J.....Raleigh
Mrs. Bradshaw, T. G.Rock Ridge	Mrs. Byrd, Chas. W.....Dunn	Mrs. Cook, H. L.....Greensboro
Mrs. Bradsher, Arthur B.Durham	Mrs. Byrnes, T. H.....Charlotte	Mrs. Cook, J. L.....Greensboro
Mrs. Bradsher, Donald.....Roxboro	Mrs. Caldwell, Jesse.....Gastonia	Mrs. Cook, W. E.....Fayetteville
Mrs. Brady, C. E.....Robbins	Mrs. Caldwell, Lawrence.....Newton	Mrs. Cooke, Q. E.....Murfreesboro
Mrs. Branaman, Guy.....Raleigh	Mrs. Camblos, J. F.....Asheville	Mrs. Cooley, S. S.Black Mountain
Mrs. Brandon, H. A.....Yadkinville	Mrs. Camp, E. H.....Asheville	Mrs. Cooper, A. Derwin.....Durham
Mrs. Brandon, J. R.....Wilmington	Mrs. Campbell, L. H.....Asheville	Mrs. Coppridge, William M.Durham
Mrs. Brandon, William R.Statesville	Mrs. Campbell, Paul C., Jr.Fayetteville	Mrs. Corbett, C. L.....Dunn
Mrs. Brantley, Julian, Jr.Rocky Mount	Mrs. Cannon, Eugene B.Asheboro	Mrs. Corbett, J. P.....Swansboro
Mrs. Brantley, Julian T.Greensboro	Mrs. Carnelley, J. H.....Burlington	Mrs. Corcoran, E. Emmons.....Asheville
Mrs. Breeden, W. H.Fayetteville	Mrs. Carpenter, C. C.Winston-Salem	Mrs. Cornwell, A. M.....Lincolnton
Mrs. Brenizer, A. G., Jr.Charlotte	Mrs. Carpenter, F. L.....Statesville	Mrs. Corpening, Wm. N.Granite Falls
Mrs. Brewer, J. Street.....Roseboro	Mrs. Carrington, G. L.Burlington	Mrs. Costner, Alfred M.....Durham
Mrs. Brian, Earl W.....Raleigh	Mrs. Carroll, F. W.....Hookerton	Mrs. Covington, Cade.....Sanford
Mrs. Bridger, C. E.....Bladenboro	Mrs. Carter, Bayard.....Durham	Mrs. Covington, M. C.Roanoke Rapids
Mrs. Briggs, H. H.....Asheville	Mrs. Casstevens, J. C.Winston-Salem	Mrs. Cox, Alexander N.....Madison
Mrs. Brinkhous, Kenneth M.Chapel Hill	Mrs. Casteen, Kenan.....Leaksville	Mrs. Cox, Samuel.....Jacksonville
Mrs. Brinn, T. P.....Hertford	Mrs. Cates, Banks R., Jr.Charlotte	Mrs. Cox, Wm. F.Winston-Salem
Mrs. Britt, J. N.....Lumberton	Mrs. Cathell, E. J.....Lexington	Mrs. Cozart, W. S.Fuquay Springs
Mrs. Britt, T. C.....Mt. Airy	Mrs. Caveness, Z. M.....Raleigh	Mrs. Cozart, Wiley S., Jr.Fuquay Springs
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VETERANS ADMINISTRATION

Several Veterans Administration hospitals are conducting conferences and clinics for the clergy to increase their understanding of the mentally ill.

VA said this program is part of its nation-wide policy to acquaint the public generally with the fact that the mentally ill can be rehabilitated as self-supporting citizens with good medical care and the understanding of their home communities.

Not all conferences and clinics are confined to the subject of the mentally ill. Some are conducted to improve hospital-community relations so as to increase understanding of mutual responsibilities in the care of the ill, VA said.

The scope of the problem in increasing the general understanding of the mentally ill is reflected in the latest VA statistics. Of the 101,519 VA patients on March 18, 1952, more than half, or 51,940, were classified as neuropsychiatric patients. And of the 51,940 neuropsychiatric patients, 45,509, or nearly 90 per cent of the total, were classified as psychotics.

* * *

More and more veterans disabled since the beginning of the Korean conflict are turning to Veterans Administration for medical care and other disability benefits, VA announced recently.

At the end of January, 1952, a total of 2,075 such veterans were being hospitalized by VA. This is an increase of nearly 200 over the previous month's total of 1,879. In addition, 2,042 such veterans sought a variety of services at VA outpatient clinics during February.

A total of 6,830 since-Korea veterans were drawing VA disability compensation or pension at the end of February. This is an increase of nearly 1,500 over the previous month's total.

The prospective number of since-Korea veterans is likely to equal, if not exceed, the number of veterans who came out of World War I.

The estimated total of all veterans in civil life at the end of February was 19,179,000, the great majority of whom served in World War II and prior wars. Many of the 716,000 since-Korea veterans also served during World War II.

Penicillin and Sulfa Drug Combination Introduced to Combat Infection

A new preparation containing penicillin G with three sulfonamides has been introduced by Winthrop-Stearns, Inc., for the simultaneous treatment of infections susceptible to oral administration of both penicillin and sulfonamides, according to Dr. Theodore G. Klumpp, president.

The preparation is known as Cilfomide, and is now available nationally. Use of the two agents in combination, it is pointed out, creates an antibacterial effect of great potency and, in some instances, clinical value exceeds that of the antibiotic or the sulfonamides alone.

Cilfomide is indicated for the treatment of such infections as pneumococcus pneumonia, gonorrhea, mastoiditis, scarlet fever, and urinary tract infections. For prophylaxis, it is used before and after tooth extraction, tonsillectomy, cesarian section, and minor surgical procedures. In acute infections with bacteremia or septicemia, Cilfomide may be administered after parenteral use of penicillin has rendered the blood cultures negative and has controlled the acute condition.

Cilfomide is a stable preparation containing 300,000 units of crystalline penicillin G potassium and 0.17 Gm. each of Sulfadiazine, Sulfamerazine, and Sulfamethazine per dose. It is available in powder form in two-ounce bottles, buffered and flavored with chocolate and mint; and in scored tablets, in bottles of 50.

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THE SURGICAL SIGNIFICANCE OF GASTRIC ANALYSIS

CHESTER G. BENNETT, M. D.

IOWA CITY, IOWA

and

NATHAN A. WOMACK, M.D.

CHAPEL HILL

The advent of roentgen ray examination of the stomach by means of a contrast meal has increased the accuracy of diagnosis of gastric and duodenal lesions to such an extent that gastric analysis, one of the important diagnostic tools of a generation ago, has lost much of its value. As an aid in the understanding and interpretation of upper gastrointestinal disease this procedure still has much to offer. The purpose of this discussion is to demonstrate some of the usefulness of the study of stomach secretions. In so doing we can well afford to consider briefly the cells that give rise to such secretions and their method of function, for it is only by studying the normal that we can appraise properly the abnormal.

The Gastric Mucosa

The surface epithelium of the stomach is made up of fairly large longitudinal cells, the innermost part of the cytoplasm containing numerous droplets of mucus. This is a peculiar mucus in the sense that it is not precipitated by acetic acid. In the normal state, it does not collect in the cytoplasm, producing the characteristic goblet shape so commonly seen in those cells forming the surface layer of the intestinal mucous membrane. Also lacking is the striated border which is as commonly seen in the cells of the intestinal mucosa. This gastric mucus acts both physically and chemically to protect the mucosa of the stomach from injury. It forms a coat-

ing over the surface epithelium and serves to protect the stomach in the empty state from the corrosive action of high acid-pepsin mixtures. It is slimy and tenacious, and tends to enmesh bacteria as well as serve as a lubricant for food.

The ability of this mucus to buffer hydrochloric acid has been the subject of numerous papers, and there has been a considerable amount of discrepancy between the various reports. A recent publication by Glass and his associates⁽¹⁾ has served to clarify the problem considerably. Visible mucus from the surface epithelium was studied, as well as dissolved mucoproteose from mucus breakdown and dissolved mucoprotein from the neck cells. When these various forms of mucus were subjected to dialysis, it was found that most of those substances responsible for the alkalinity of the mucus and its power to buffer the hydrochloric acid secreted by the stomach could be dialyzed, and were therefore probably mineral bases bound loosely to the protein. Nevertheless, mucous substances dissolved in the gastric juice apparently did participate to some extent in the buffering of the gastric acid exclusive of their electrolyte, amino acid, peptide, and other dialyzable contents, this ability being almost in inverse proportion to the acid activity of the gastric mucosa. By and large, the total buffering capacity of the mucous substances dissolved in gastric juice ranged from a little over 1 per cent to a maximum of slightly over 10 per cent of the free hydrochloric acid present.

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Cellular Structure of the Gastric Glands

Where one views the stomach mucosa under low magnification, a huge number of small gastric pits are apparent. Opening into each of these pits are several of the so-called gastric glands. Each gland is a small tubule unit from 30 to 50 microns in length, possessing an extremely narrow lumen and ending blindly. This blind end is usually coiled and sometimes divides into two or three branches. We are concerned with four types of cells seen in these gastric glands: (1) the mucous neck cell, (2) the chief, or zymogenic cell; (3) the parietal, oxyntic or acid-secreting cell; and (4) the argentaffin cell of Heidenhain.

Mucous neck cells

The mucous neck cells are found in the neck of the gland as the cells approach the wall of the origin of the pit. In the well differentiated mucous neck cell, mitotic figures are never observed. However, as one approaches the bottom of the foveola, one encounters a gradual lack of differentiation in the epithelium, and it is possible that the neck cells arise from these latter areas. These cells differ from those of the surface epithelium as well as from the zymogenic and parietal cells, although there is a morphologic relationship with the latter when stained only with nuclear dyes. When these cells are stained with mucicarmine or mucihematin, however, one notes in the cytoplasm many brilliantly stained granules, while there is no staining of the granules in the zymogen-producing cells. This staining reaction is specific and would suggest that there are mucus-secreting elements in the cytoplasm of these neck cells.

The mucus secreted by the neck cells is of a different kind, however, from that seen in the gastric surface epithelium or coming from the mucous gland elsewhere in the body. This soluble mucin or glandular mucoprotein, as it has been more recently called, has been the subject of considerable recent investigation by Glass and his associates⁽²⁾. They have produced evidence that it probably represents the intrinsic gastric factor concerned in forming the hematopoietic principle, and is probably concerned in some way with the absorption of vitamin B¹². The secretion of this material by the stomach cells is apparently under the control of the vagus nerves. They noted that after successful va-

gotomy the secretion of mucoprotein is depressed completely, and the normal response of increase in production as a result of insulin hypoglycemia is lost. It must be recalled, however, that patients who have been subjected to section of both vagus nerves have been observed for many years following the operation without any evident tendency toward the development of macrocytic anemia. If, therefore, the neck cells are responsible for the secretion of the intrinsic principle, this function must also reside in other areas in the intestinal tract not under vagal control.

Zymogenic cells

The chief cells, for the most part situated in the distal half of the gland, are arranged in a simple layer on a basement membrane and secrete directly into the lumen of the gland. Just before they discharge their secretion one may identify numerous small granules in the cytoplasm near the lumen. These cells degenerate very rapidly unless the stomach contains no acid. Since the days of Heidenhain in 1870 all experimentation has served to indicate that these cells secrete pepsin and that the above mentioned granules are pepsinogen, a precursor of the enzyme. Whether or not they also secrete rennin has never been firmly established. Mitotic division is never observed in these cells, and it is still not understood exactly whether they are able to undergo division or whether they renew themselves by differentiation from the mucous neck cells. In all probability the latter is true.

Parietal cells

Situated between the zymogenic or chief cells, but much more numerous in the region of the neck of the gland, is a spherical but sometimes triangular type of cell, often occupying even a peripheral position between the chief cells and the basement membrane. These are called parietal cells, and may be easily distinguished because their cytoplasm stains brilliantly with any of the acid aniline dyes such as eosin. The cytoplasm is marked by a characteristic series of canals forming a loose network between the cell surface and the nucleus. These cells communicate with the main lumen of the gland through small interstices between the chief cells. It is through these canals that the secretion of the parietal cells enters the lumen. Here again one rarely encounters a mitotic

figure, and again it is possible that these cells derive from the relatively indifferent mucous neck cells.

The Secretion of Hydrochloric Acid

It seems to be a generally accepted fact that the function of the parietal cell is the secretion of hydrochloric acid, but the method in which this secretion occurs is still a source of great controversy. This phase of the subject has been considered in detail by Babkin⁽³⁾.

Site of formation

At present there are two antagonistic points of view concerning the site of formation of hydrochloric acid by the parietal cells. One group of investigators feels that the acid is formed as a precursor within the cytoplasm and converted into acid in the lumen of the gland, while an opposing group is of the opinion that the actual hydrochloric acid is formed within the cytoplasm. The prevailing data on which both of these views are based are subject to criticism. Yet, since the subject is of fundamental clinical importance, it might be considered briefly here.

Claude Bernard is supposed to have demonstrated that the acid is formed on the surface and not in the gland by the use of a mixture of ferric lactate and potassium ferrocyanide, which on addition of acid precipitates Prussian blue. The use of this indicator when injected intravenously has been questioned by Harvey and Bensley. The subsequent work of Chambers, who injected neutral red directly into the parietal cell by the use of micro-dissection methods, and that of Hoerr and Bensley, who used the Altmann-Gersh freezing-drying method, indicates that the parietal cells have an alkaline reaction, while the crypts of the glands have an acid reaction.

Mode of secretion

The biochemical pathway through which the hydrochloric acid is secreted is likewise subject to considerable discussion. We have hardly progressed beyond the level of theorizing. There are, however, several experimental observations that must be reckoned with. Davenport⁽⁴⁾ has demonstrated that there are large amounts of carbonic anhydrase in the gastric mucosa of cats, rats, and rabbits. In a very careful study he has further demonstrated that this carbonic anhydrase is present in the parietal cells of the

gastric mucosa of cats and rats and is absent in the chief cells. In cats the concentration is five to six times higher than that in red blood cells, while in rats it is somewhat lower. Malmstrom and Glick⁽⁵⁾ have recently added corroborative observations. By the use of a special technique these authors have described a quantitative histochemical method for the determination of zinc, which in this study is applied to the quantitative distribution of zinc with respect to different types of mucosal cells in the dog's stomach. It was found that the highest zinc concentrations per unit of reduced weight were found in the epithelial and parietal cell regions. The distribution of zinc corresponded to the distribution of carbonic anhydrase, and it is of interest to recall the work of Keilin and Mann demonstrating that approximately 0.33 per cent of this enzyme is composed of zinc. It is highly possible, therefore, that the concentration of hydrogen ion in hydrochloric acid formation may be a function of carbonic anhydrase. It is also interesting to note that by means of histochemical studies in the actively secreting stomach, chloride is found to be concentrated in the connective tissue and submucous tissue and to a lesser extent in the subepithelial layers.

Variations in Gastric Secretion

In all probability the secretion of gastric acid in the human being is greater at some periods than at others. From the work of Hollander⁽⁶⁾ it is apparent that the acid normally secreted by the parietal cells in the body is almost pure hydrochloric acid that is slightly hypertonic and has a pH around 0.87 with a titratable acidity of 0.17 N. A portion of this hydrochloric acid is very quickly combined with other substances in the gastric juice, which also contains significant amounts of sodium, potassium, bicarbonate, and phosphate. The volume of gastric juice secreted by the normal stomach in a period of 24 hours is variable indeed, not only in different individuals but in the same individual, and amounts varying from 1 to 3 liters are not unusual. The different components making up the total of gastric secretion likewise do not always maintain the same relationships, and their concentrations will often vary not only from day to day but from hour to hour.

It is well for us to remember that the entire mucous membrane of the stomach is not

identical. While the glands of the fundus and body of the stomach seem to be concerned chiefly with the formation of pepsin and hydrochloric acid, this is not true of the small group of glands noted around the cardia and the much larger area around the pylorus. In man the former group is more or less insignificant, but in the region of the pylorus there is an area measuring from $4\frac{1}{2}$ to $5\frac{1}{2}$ cm. on the lesser curvature side and approximately 4 cm. on the greater curvature side that is composed of glands of a peculiar nature. The cells of these pyloric glands produce mucus of a type that resembles in all of its staining characteristics that seen in the neck cells of the fundic glands. While occasional parietal cells may be encountered in the pyloric glands, they are of no functional significance. Interestingly enough, this pyloric juice is alkaline, and in all probability its secretion plays no important role in the digestion of proteins. It probably has several functions, one being the production of the hormone gastrin, which has the property of stimulating the outpouring of acid gastric juice.

In almost any lesion that involves the stomach, as well as with increasing age, there is a tendency toward replacement of the chief and parietal cells by mucus-secreting cells. This is not a diffuse process, but consists rather of a histologic regression of the lower boundary of the body of the stomach, or that area occupied by the body glands. This type of atrophy is commonly seen beyond the age of 50, and indeed may be carried to such an extent that a considerable group of apparently normal individuals beyond the age of 60 have no titratable free hydrochloric acid in the stomach.

Stimulation of Gastric Secretion

Although the anatomic site of the formation of acid and the bio-chemical pathway by which it is formed are not known, those factors that stimulate the production of hydrochloric acid in the stomach are fairly well understood. There are two routes by which the gastric glands may be stimulated; the nervous, which is by way of the parasympathetic system, and the humoral, which is by way of a chemical mediation through the blood stream. The volume and acidity of the gastric juice secreted by a stomach containing no food bears a direct relationship to the

repetitiveness and the intensity of vagal stimulation, whereas the amount of gastric juice produced by the humoral method under normal circumstances will depend upon the amount and nature of the food taken in the stomach. The vast majority of the humoral stimulation obtains from the apparent formation of a substance by the mucosa of the antrum, particularly near its duodenal border, which has been called gastrin. Perhaps a similar humoral mechanism is present in the intestinal tract, but this plays a relatively unimportant role in the secretion of gastric acid.

The parasympathetic mechanism

Since the nervous impulses producing a stimulation of gastric secretion are mediated through the vagus nerves, it was only logical to assume that this was the result of the action of acetylcholine produced at the nerve ending and affecting the gastric epithelium. For many years it was impossible to demonstrate effectively that acetylcholine when injected intravenously would have such an action. However, as a result of the recent studies by several groups of workers, and in particular Gray and Ivy⁽⁷⁾, Nacheles, Motel, Kosse and Neuwelt⁽⁸⁾, and Stavrakys⁽⁹⁾, it has become fairly well established that a large subcutaneous dose of acetylcholine will produce a marked increase in secretion by the stomach. It is now apparent that previous experiments were unsatisfactory mainly because too small a dose of acetylcholine was used. However, a copious secretion of gastric juice can be obtained by administering a small dose of acetylcholine if prostigmine, which delays the destruction of acetylcholine, is given at the same time. Acetylbetamethylcholine (Mecholyl) is many times more potent than acetylcholine when each is used separately. Babkin⁽³⁾ has postulated that acetylcholine functions by stimulating directly the mucous cells and the chief cells, but acts indirectly on the parietal cells by first liberating histamine within them.

When the stomach is stimulated through its cholinergic mechanism, whether through the direct injection of acetylcholine or by stimulation of the vagus nerves or by the production of insulin hypoglycemia, the type of secretion obtained is such as to suggest that all elements of the gastric mucosa participate. The volume of secretion is large. There is a high content of both free and

combined acid. There is a high total chloride content, and the material is both rich in mucus and high in peptic digestive power.

The humoral mechanism

Gastric secretion as a result of stimulation by way of the humoral mechanism seems to be almost completely related to stimulation of the parietal cells, and the result is the production of both acid and fluid. This can be observed when histamine is injected intramuscularly. Again, this seems to be the action of weak solutions of alcohol in the stomach. As a result it has been suggested that the action of alcohol in the production of free hydrochloric acid in the stomach is one of liberating histamine in the gastric mucosa⁽¹⁰⁾.

Perhaps the most effective of the humoral mechanisms is that of gastrin. Since its first description by Edkins⁽¹¹⁾ there has been much discussion at times even as to its actual existence, and frequently as to its composition. It can be fairly authoritatively stated now that it is possible to extract a substance from the mucosa of the pylorus which conforms to none of the crystalloid components of the gastric mucosa, which is not histamine, and which is not choline. This substance when injected into an animal intramuscularly or intravenously produces considerable gastric secretion rich in water and acid and very poor in protein. The surgeon's failure to recognize the importance of the secretion of gastrin by the pyloric portion of the stomach was perhaps the most outstanding reason for the failure of surgery in the treatment of peptic ulcer until rather recently.

From the above discussion it becomes apparent that we can divide roughly the stimulus to gastric secretion into two types. One of these, which has been called nervous or cephalic stimulation, resembles in all respects the result that obtains when acetylcholine reaches the mucosa of the body and fundus of the stomach. The other, which has been called hormonal or humoral stimulation, seems to be identical to that which occurs when histamine reaches the mucosal cells of the upper part of the stomach.

Inquiry into the Cause of Excessive Secretion

Excessive secretion on the part of the gastric mucosa undoubtedly often occurs for short periods without evidence either subjective or objective on the part of the individual.

Transient situations of stress or dietary indiscretion are frequent and without apparent permanent organic event. Long sustained periods of increased acid secretion, however, can result in serious damage.

Duodenal and gastrojejunal ulceration are almost universally associated with excessive gastric secretion and gastric activity attending such protracted periods. It is important for us to ascertain, if possible, which of the two secretory mechanisms is at fault in the production of such an increase in gastric function. Therein lies the logic of therapy. From the point of view of the surgeon, if the humoral mechanism is excessively stimulating the gastric gland, this can be easily obviated by resecting the antrum of the stomach. Were the neuromechanisms to be at fault, this could be cared for by sectioning the vagal nerves supplying the stomach, an operative procedure that has been spearheaded so ably during the past few years by Dragstedt. It has been estimated by Dragstedt and his colleagues⁽¹²⁾ that in normal animals the antral mechanism probably accounts for about 45 per cent of the gastric juice secreted, while the nervous mechanism accounts for an additional 45 per cent. During abnormal situations, however, this relationship may not hold.

We recently set up an experiment with the idea of determining which of these two mechanisms was at fault in patients with duodenal ulcer, and that is the essence of this report*. If the stomach was empty and the patient at rest, we could determine the amount of secretion resulting from cephalic stimulation by constant aspiration of the stomach for a given period of time. This, the so-called estimation of night secretion, has been previously developed by others. Following the conclusion of this estimation, we felt that if the patient were then given histamine intramuscularly, we could determine the sensitivity of the stomach to the action of histamine and in that way perhaps estimate the part that was being played by the antrum.

Material and Method

Gastric secretion studies were carried out as follows: The subject received no food or fluids after 3:00 P. M. A Levin tube was inserted into the stomach at 7:00 P. M. and by aspiration the stomach emptied of all its con-

*These patients were studied at the University Hospital, Iowa City, Iowa.

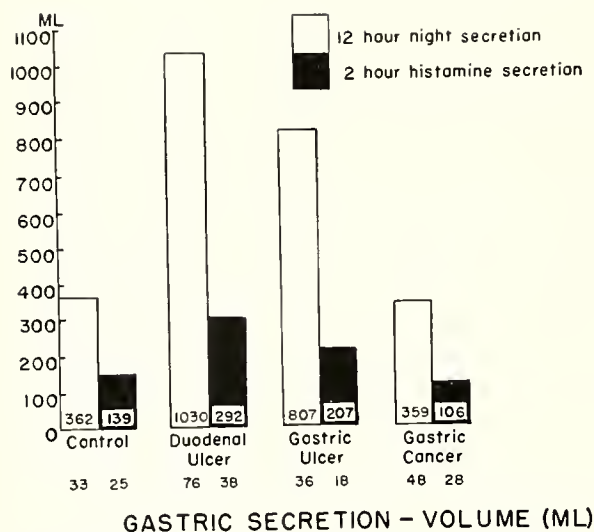
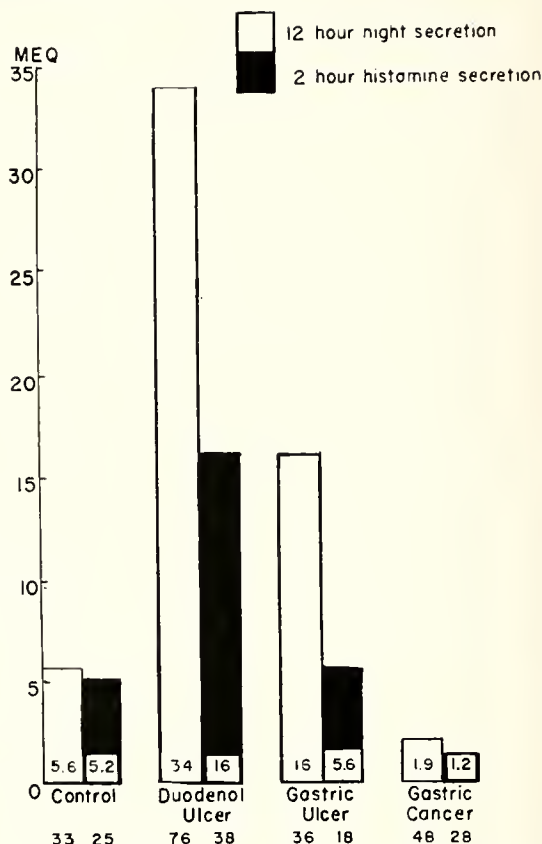


Fig. 1. Volume of gastric juice expressed in milliliters obtained from the fasting stomach (12-hour night secretion) and following the administration of histamine.

tents. Immediately following this a Wangenstein suction apparatus was attached to the tube and the gastric secretions collected continuously for 12 hours. At the conclusion of this 12-hour period the subject was given 1 cc of 1:1000 histamine phosphate, following which the gastric secretions were again collected for an additional 2-hour period, again employing the Wangenstein suction apparatus. The 12-hour and 2-hour aspiration specimens were measured and the clinical units of free hydrochloric acid determined by the sodium hydroxide titration method. The 12-hour and 2-hour free hydrochloric acid output was calculated and expressed in milli-equivalents of hydrochloric acid (since free acidity as expressed in clinical units is synonymous with milli-equivalents per liter, the volume of gastric juice secreted expressed in liters multiplied by the free acidity equals the milli-equivalents of hydrochloric acid secreted in 12 and 2-hour periods). This method of expressing the amount of hydrochloric acid gives quantitation rather than simple concentration, and where the gastric secretion is markedly contaminated by saliva and at times by regurgitated duodenal juice as a result of the indwelling nasal tube, it is almost essential for any degree of accuracy.

In order to obtain a comparable group to



GASTRIC ANALYSIS - HCl SECRETION

Fig. 2. Amount of hydrochloric acid expressed in milli-equivalents obtained from the fasting stomach (12-hour night secretion) and following the administration of histamine.

serve as controls, 12-hour night secretion studies were carried out on a series of 33 patients selected at random on the surgical wards who did not present any evidence of peptic ulcer but who were suffering from other diseases such as hernias, varicose veins, and so forth. Twenty-five of this group of patients were subjected to the 2-hour histamine studies. Seventeen were male and 16 female. The average age of the entire group was 55.12 years, the females averaging 56.43 years, the males 53.88 years. This age is comparable to that of the patients with duodenal ulcer studied.

The 12-hour night secretion study was then carried out on 76 patients with duodenal ulcer. Thirty-eight of this group of patients were also subjected to the 2-hour histamine test. Diagnosis of duodenal ulcer was confirmed at operation in 64 of these patients.

Table 1

Twelve-Hour Night Secretion Test
(Volume and Amount of Hydrochloric Acid Secreted
by the Fasting Stomach in Twelve Hours)

Group	No. Patients	Average Age (years)	Volume (ml.)		Output HCL (mEq)	
			Average	Ranges	Average	Ranges
Control	33	55	362	43-1500	5.6	0-31
Duodenal ulcer	76	55	1030	200-2600	34.0	0-167
Gastric ulcer	36	55	807	160-2300	16.0	0-81
Gastric cancer	48	65.6	359	15-1150	1.9	0-66

The stage of their disease varied from early ulceration to chronic lesions with complete obstruction. The remaining 12 were diagnosed by roentgen ray examination and history combined as having duodenal ulcer. Sixty-eight of these patients were males averaging 54.85 years, while 8 were females averaging 56.75 years. The average age of the entire group was 55.04 years.

Thirty-six patients with gastric ulcer proved at the time of operation had preoperative 12-hour night secretion studies. Eighteen of this group also had the 2-hour histamine secretion study. Thirty-one of these patients were males averaging 55.77 years, while 5 were females averaging 50.4 years. The average age of the entire group was 55.02 years.

Forty-eight patients with proven gastric carcinoma by surgical exploration were subjected preoperatively to the 12-hour night secretion study, while 28 of this group also had the 2-hour histamine study. Thirty-five of this group were males averaging 65.97 years, and 13 were females averaging 64.61 years. The average age of the entire group was 65.6 years.

Results

Volume of secretion

In our control group of 33 patients, there was an average secretion of 362 ml. of gastric juice during a 12-hour night secretion period, with an average of 12.5 clinical units of free hydrochloric acid and an average hydrochloric acid output of 5.6 milli-equivalents. Seventy-six duodenal ulcer patients secreted an average volume of 1,030 ml. of gastric juice during a 12-hour night secretion period, with an average of 30 clinical units of free hydrochloric acid and an average hy-

Table 2

Two-Hour Histamine Test
(Volume and Amount of Hydrochloric Acid Secreted
in Two Hours Following the Injection of Histamine)

Group	No. Patients	Average Age (years)	Volume (ml.)		Output HCL (mEq)	
			Average	Ranges	Average	Ranges
Control	25	55	139	15-300	5.7	0-18
Duodenal ulcer	38	55	292	25-630	16.0	0-45
Gastric ulcer	18	55	207	15-500	5.6	0-23
Gastric cancer	28	65.6	106	0-300	1.2	0-21

drochloric acid output of 34 milli-equivalents. Thirty-six patients with gastric ulcer had an average night secretion volume of 807 ml., with an average of 16 degrees free hydrochloric acid and a hydrochloric acid output of 16 milli-equivalents. Forty-eight patients with gastric carcinoma secreted an average of 359 ml. during a similar 12-hour period, with an average of 2.3 clinical units of free hydrochloric acid and an average hydrochloric acid output of 1.9 milli-equivalents.

Effect of histamine

The results following the injection of histamine were of interest. Twenty-five control patients secreted an average volume of 139 ml. of gastric juice during the 2-hour period of observation following the injection of 1 cc of histamine phosphate. The average clinical units of free hydrochloric acid was 33, and the average hydrochloric acid output was 5.7 milli-equivalents. Eighteen patients with gastric ulcer secreted an average of 207 ml. of gastric juice in the two-hour post-histamine secretion period, with an average of 19 degrees of free hydrochloric acid and an average hydrochloric acid output of 5.6 milli-equivalents. Twenty-eight patients with gastric cancer were found to have an average secretion of 106 ml. during the 2-hour period, with an average of 5.4 degrees of free hydrochloric acid and an average hydrochloric acid output of 1.2 milli-equivalents.

Interpretation of data

Because of the numerous variables associated with gastric analysis, the validity of these determinations must be scrutinized carefully. On numerous occasions the same patient was subjected to more than one 12-hour night secretion study before operation.

There was always considerable variation. Wherever obstruction of the pylorus had been present for any considerable length of time or where there was malnutrition, alkalosis, or factors that tended to produce gastric edema, there would often be a lowered output of hydrochloric acid even in the face of an active duodenal ulcer. Later on, when these factors were corrected, the output of hydrochloric acid would be often tremendous. Nevertheless, we have accepted the first determination as being authentic, since it represented the function of the stomach when the patient was first seen.

The interpretation of the findings in those patients without free hydrochloric acid was difficult. For instance, in those patients with gastric cancer, 93.8 per cent of the 12-hour secretion group and 85.7 per cent of the 2-hour secretion group following histamine had no free hydrochloric acid. Furthermore, 15 of the 33 control patients (45.5 per cent) had no free hydrochloric acid. Eight of the duodenal ulcer patients (10.5 per cent) had 12-hour secretion specimens that did not contain free hydrochloric acid. Absence of free hydrochloric acid was also noted in 38.9 per cent of our patients with gastric ulcer. In the 2-hour post-histamine secretion study, 20 per cent of the control patients with gastric ulcer had no free hydrochloric acid in their specimens. Absence of free hydrochloric acid following histamine injection was found in 3 out of 38 patients with duodenal ulcer (7.9 per cent), and in 5 out of 18 gastric ulcer subjects (27.8 per cent). We feel that these figures are best explained on the basis of replacement of the epithelium of the body of the stomach with mucus-secreting cells as a result of age and of gastritis, as well as for some of the more acute causes mentioned above.

The presence of such a large number of patients with no free hydrochloric acid among our controls and in the duodenal ulcer group makes the average level of acid secretion in our studies much lower than that reported by others. Where younger subjects were studied by others, the results of the 12-hour night secretion tests are much higher. The disparity, therefore, is much more obvious in the control patients and in those with duodenal ulcer than in the patients with gastric ulcer or gastric cancer. It does accentuate the importance of using as controls patients of the

same age average as those being studied with ulcer.

Our data might be briefly summarized by stating that the 12-hour night secretion study of patients shows that the average volume in duodenal ulcer patients is approximately three times that of the control group, while the average volume of the gastric ulcer patients is approximately two and one-half times that of the control group, and the average 12-hour volume in carcinoma of the stomach patients is practically the same as the average volume in the control patients. In comparing the hydrochloric acid output of the various groups of patients, it will be noted that the figure for the duodenal ulcer group is approximately six times greater than that of the control group. The hydrochloric acid output of the gastric ulcer group is approximately three times that of the control series, while the hydrochloric acid output of the gastric carcinoma group is approximately one-third that of the control.

In the 2-hour post-histamine study we found that the average volume in the duodenal ulcer patients is approximately twice that of the control group, in the gastric ulcer patient one and one-half times that of the control group, while the average volume of the gastric cancer group is slightly less. In the 2-hour post-histamine secretion period the average hydrochloric acid output of the duodenal ulcer group is approximately three times greater than that of the control group, in the gastric ulcer patients it is practically the same, while in the gastric cancer group it is about one fifth of the control value.

Comment

It becomes apparent that the clinical experiment set up by us to aid in determining the operative procedure to use in patients with duodenal ulcer coming to surgery proved to be less clear-cut than we had originally hoped. Except in those instances where there was a local situation such as pyloric obstruction or gastric edema to account for it, we found that almost universally the 12-hour night secretion was markedly increased in patients with duodenal ulcer. This has been the observation of others. This finding would suggest that in practically all patients with duodenal ulcer there is an overaction of the cephalic mechanism or an increase in sensitivity of the glandular epithelium of the stomach to the acetylcholine mechanism.

On the other hand, there is likewise an increase in the sensitivity to histamine in most patients with duodenal ulcer. As a general rule the greater the cephalic effort, the greater this sensitivity. Nevertheless this relationship was by no means of a linear type, for certainly the secretory evidence of the increased cephalic activity did not relate either in volume of secretion or in amount of hydrochloric acid secretion to the histamine response in many instances. At times this increase in sensitivity has been so extravagant that we have felt it advisable to recommend to the patient that the antral mechanism be altered. This, in effect, means that in several instances the hormonal mechanism seemed to be the chief offender in the maintenance of the duodenal ulcer. In the majority of cases, however, both mechanisms were about evenly involved, and the decision as to the type of operation was made after the consideration of other factors as well. In the end, approximately two thirds of these patients were subjected to subdiaphragmatic vagotomy with pyloroplasty or gastrojejunostomy, and one third to subtotal gastrectomy. These patients have not been followed long enough for evaluation of the operative end result.

A similar observation of histamine sensitivity in patients with duodenal ulcer has been made by Oberhelman⁽¹³⁾, who noted almost twice as much output of hydrochloric acid in the stomachs of patients suffering from duodenal ulcer as compared to the normal in response to the same amount of histamine. A similar observation has been made by Ihre⁽¹⁴⁾.

Recently Dragstedt and his co-workers⁽¹²⁾ have called attention to the fact that the opposite situation obtains following complete division of the vagus nerves to the stomach. They noted a considerable depression in the normal gastric secretory response to a standard dose of histamine following such an operation. In one group of patients with duodenal ulcer, there was a reduction from 17.3 milli-equivalents of hydrochloric acid before operation to 6.1 milli-equivalents after operation. In a second group of patients this reduction was from 27.0 milli-equivalents before vagotomy to 5.5 milli-equivalents after the operative procedure when the same dose of histamine phosphate was given.

From all available data, both experimental and clinical, there then is definite evi-

dence that histamine potentiates the action of acetylcholine in the secretory mechanism of the stomach. Such an effect has been noted previously in studies on the perfused tissues of the dog's leg by Burn and Dale⁽¹⁵⁾.

The two substances each play an essential part in the secretion of hydrochloric acid and a lowering of either function will be effective in lowering the amount of acid secreted.

All medical and surgical theory of duodenal ulcer has been consciously or unconsciously directed at interfering with one or both of these two mechanisms. That there is a close relationship between the action of both substances can be seen by the antagonistic action of various drugs to both of them. Such drugs are quinidine, procaine, pethidine (Demerol), atropine, and Benadryl. Since these drugs may exert their effects by competing with the local hormonal action of histamine and acetylcholine, we must also realize, therefore, that both our medical and surgical approach toward the treatment of duodenal ulcer may be directed at a single fundamental biologic function. Our study, then, may well end with the question of why patients with increase in parasympathetic activity show potentiation of the histamine effect, and what is the mechanism.

Summary and Conclusions

A series of patients with gastric and duodenal lesions was studied in order to determine the relative importance of the nervous and the hormonal mechanism in the secretory aberrations encountered in gastric analysis. Particular attention was paid to duodenal ulcer.

Virtually all patients with duodenal ulcer showed evidence of varying amounts of excessive stimulation of the cephalic mechanism.

Most patients with an increased secretion of free hydrochloric acid showed a potentiation of the action of histamine on acid secretion when compared to the normal control. There is no consistent relationship either in volume of gastric secretion or in milli-equivalents of acid secreted between the two.

At times the increased sensitivity of the gastric secretory mechanism to histamine has been so extravagant as to suggest that the antral function of the stomach was playing a more important role than the vagal.

At such times gastric resection was performed. Such clear-cut distinction was not common, however, and in most instances vaginal section seemed indicated from our studies.

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A Much Maligned Drug. The day of the milk sugar placebo is past except for controlling clinical investigations, but symptomatic therapy is as important as ever. Of all the drugs at our disposal, perhaps the most valuable are phenobarbital and belladonna. The former has been very much maligned in recent years. It has been called a dangerous drug, and yet I venture to say that it is prescribed more than any other. It has been called habit-forming, but my own experience is that it is harder to get patients to continue taking it than to stop its use. Many antispasmodics have been brought out in an effort to displace belladonna, yet it still remains the most effective. In symptomatic therapy the two most common objectives are sedation and relief of smooth muscle spasm, and these two drugs fulfill the order adequately. Combinations are often used. — Yater, W. M.: *Keeping Abreast of Medical Progress*, Pennsylvania Medical Journal 54:425 (May) 1951.

The psyche and the soma. Neither the psyche nor the soma should hold the limelight. They comprise but halves of the same circle, without beginning or end but with varying, alternating or even coincidental lengths of arc. We cannot well consider them separately. — White, P. D.: *The Psyche and the Soma*, *Ann. Int. Med.* 35:1293 (Dec.) 1951.

HIP PROSTHESIS

Its Contribution to Reconstruction Surgery of the Hip

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and

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CHARLOTTE

Of all the joints in the body the hip is perhaps the most vulnerable, and certainly the most challenging from the standpoint of treatment. This is evidenced by the large number of procedures that have been utilized over the years for reconstruction of the hip.

The evolution from a quadruped to an anthropoid and from anthropoid to the human mode of progression has involved a great strain on the hip, since it must carry double the former weight and also provide for balancing the erect body.

Anatomically the hip presents important characteristics of its own. The large epiphysis of the femoral head is entirely intrarticular and receives a poor blood supply from the vessels which enter it from the retinaculum and diaphysis. The angle which the neck of the femur makes with the shaft, perfectly adapted for conditions of health, is very liable to distortion by trauma or disease, and distortion in turn destroys the correct balance of the trunk on the lower limbs.

To replace and retain the dislocated hip; to re-establish correct relations between an ill formed femoral head and an ill developed acetabulum; to attach a displaced epiphysis or mend a broken neck of the femur, maintaining a correct angle with the shaft of the bone; to remake the joint which has been destroyed by inflammation—these are some of the major problems which are encountered in reconstruction surgery of the hip.

History

The possibility of substituting some type of prosthesis, including the femoral head, for an articular extremity is not new. Credit for the first systematized attempt to replace a bony substance should be given to Delbet⁽¹⁾, who utilized a prosthesis of reinforced rubber in 7 cases in 1919. In one of these cases the humerus was replaced by a prosthesis following resection for a sarcoma. In 1926

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Robineau⁽²⁾ reported insertion of a prosthesis following resection of a benign tumor in the lower end of the humerus. This prosthesis was constructed of rubber reinforced with steel. The following year he performed a similar procedure, utilizing a prosthesis in the upper third of the femur. In the case of the humerus the joint remained stable and functional, and the prosthesis was well tolerated. However, in the case of the femur the artificial insert proved quite defective, and the entire procedure broke down within a year and a half.

Hey-Groves⁽³⁾ in 1927 replaced an inflamed and ankylosed femoral head with a large ivory nail, which was inserted through the femoral neck into the shaft. In 1929 Bohlman⁽⁴⁾ experimented with replacement of the femoral head, and since 1940 he has reported 8 clinical cases in which a vitallium device was used. Moore and Bohlman⁽⁴⁾, working together in 1943, resected a large giant-cell tumor of the upper half of the femur and replaced the bone with a large vitallium prosthesis. An encouraging result was obtained, but the patient died 20 months later of a cardiac condition.

From 1942 to 1946, prostheses of stainless steel were used temporarily in 2 and definitively in 5 cases. In all these cases extensive bony resection had been necessary in the treatment of malignant tumors. To obviate bony rarefaction and fracture at the seat of fixation, grips with blades fixed by means of screw bolts were used. The metallic head was of the same dimension as the head removed, and retention was obtained by suturing the capsule.

In 1946 Hudack⁽⁵⁾, in New York, experimenting with dogs, used a prosthesis with a large nail-fixation seated in the medullary canal of the upper end of the humerus. One year later Delitala, of the Rizzoli Institute at the University of Bologna, reported attempts at or with prosthetic replacements.

In 1947 Mellen and Phalan⁽⁶⁾, in America, reported 4 cases in which an acrylic prosthesis was used to replace the distal portion of the humerus. In the same year the Judet brothers⁽⁷⁾ in Paris, impressed by the absence of adhesions and connective tissue formation in the use of a polymethacrylate prosthesis by the otolaryngologists, decided on further experimentation and the possibility of using this material in the hip joint. By animal experimentation Virenquen of Paris has shown

that in muscles and in peritoneum an acrylic resin gives rise to only temporary reaction, and he concluded that the absence of tissue reaction was an established fact. We now have reports by the Judet brothers (1951) on the use of acrylic prosthesis in 400 cases observed over periods of more than one to four years. At present approximately 100 cases have been reported in the literature in this country, and by personal communication and conversation we know of several hundred other cases. Perhaps over 3,000 operative cases have been reported from France and the surrounding European countries.

Conditions Requiring Reconstruction of the Hip

Among the challenging problems to be met in reconstruction surgery of the hip associated with disease at some age in life are: (1) Legg-Calvé-Perthes disease with subsequent traumatic arthritis, usually appearing in early adult life; (2) unreduced or unsatisfactory end results, congenitally dislocated hips; (3) coxa vara of adolescence; (4) slipped upper femoral epiphyses which have not fared well; (5) osteoarthritis of the hip, sometimes referred to as arthritis deformans or morbus coxae senilis; (6) Marie-Strumpell arthritis; (7) old septic hip; (8) tumor of the femoral head or neck; (9) long-standing congenital dislocations of the hip.

In the field of trauma to the hip where other measures have failed are: (1) intra-capsular fracture of the hip with resultant necrosis of the head of the femur or non-union in the neck; (2) fracture-dislocations of the head of the femur when aseptic necrosis ensues.

Surgical Procedures Employed

Surgical procedures designed for treatment of the above lesions, some of which have met with varying degrees of success, have been: (1) denervation for pain; (2) osteotomy to relieve stress; (3) bone-grafting; (4) pseudoarthrosis; (5) arthrodesis; (6) arthroplasty. These procedures are designed primarily to relieve pain, correct deformity, re-establish stability, restore motion, and repair the ununited fracture of the femoral neck.

1. Since pain is a common symptom, *denervation* of the hip has been advocated. The only disappointment has been the short duration of its effect. It is indicated chiefly for

the elderly patient who cannot undergo severe or more extensive surgery.

2. *Osteotomy* of the simple corrective type, or displacement osteotomy of the high subtrochanteric or low subtrochanteric type, have been used in the redistribution of stresses. The major objection is the prolonged period of immobilization required, which is unsuitable for the older patient. This objection, together with the possibility of jeopardizing knee motion, has greatly limited the use of this procedure.

3. *Bone-grafting* has been used in many cases and has afforded some satisfactory results in non-united fractures of the femoral neck. There is always the danger that this union may not occur because of the avascular condition in the femoral head.

4. In England Girdlestone⁽⁸⁾ has proposed a *pseudoarthrosis operation* to increase motion. This procedure has met with some success. Shortening of the extremity, which increases weight-bearing on the other side, is a marked drawback, as imbalance contributes to low back pain.

5. *Arthrodesis* is also considered a practical procedure, and is quite satisfactory in selected cases. Fusion is not too easy to obtain in all cases, however, and a long period of immobilization must always be anticipated. The latter drawback and the consequent endangering of motion of the knee joint make this procedure difficult for older people. Back pain is a factor here also.

6. Many surgeons have urged the use of an *arthroplasty procedure* with the interposition of soft tissue or an innocuous metal such as a Smith-Petersen cup. The failures of arthroplasties lie to a great extent in the severe load that the hip joint must carry on the ill-fitting vitallium cup. Another obstacle encountered is the difficulty of application due to gross deformity of the femoral head and neck. Lastly, there is the possibility that interference with the blood supply will result in absorption of the head and neck. Postoperative treatment is again quite protracted, which makes this also a difficult and hazardous procedure for older patients.

7. In the treatment of fractures of the femoral neck with non-union, a multitude of reconstruction procedures have been employed. The most classic procedures require sacrifice of the head and insertion of the neck into the cavity of the acetabulum, as described by Whitman in 1924. Modifications have been described by Lucke, Colonna, Brac-

kett, and others. While some are of value, these methods fail because the joint is not satisfactorily reconstructed from the standpoint of good mechanics. The femoral neck is considerably smaller than the acetabulum with which it articulates, making it quite unstable.

Types of Prostheses

At the recent meeting of the Academy of Orthopedic Surgeons in Chicago, approximately 60 different types of femoral prostheses were shown or reported. All are variations of the three main types. They are usually made out of metal or plastic. They may fit within the medullary shaft; they may be screwed to the side of the femur by a plate, such as the Jaenichen type; they may fit down the femoral neck and be held in place by a nail, as advocated by Judet; or they may sit as a large sleeve over the entire shaft of the femur, as the early prostheses were designed to do when malignant tumors were resected from the upper third of the femoral shaft. Lastly, they may be a combination of any of the three mentioned, and these probably represent the major portion of all the prostheses tendered to date. The most distinguishing feature of the Judet prosthesis is the fact that it is made from a plastic and not from a metal.

Operative Technique

The operative technique employed in these cases has been by the Smith-Petersen antero-femoral approach, exposing the anterior aspect of the hip joint. Judet often approaches the joint by a small antero-femoral incision, and is able to dislocate the head without too much difficulty, and apply a prosthesis. In some instances he has been known to complete the procedure in less than 40 minutes. We have leaned to the larger exposure, have done extensive capsulectomies and dissections about the neck, and reconstructed most of the acetabulae. This is especially advantageous in the arthritic cases. A special reamer and instruments designed by Judet facilitate the application of the prosthesis and act of fitting it into the newly reconstructed acetabulum. In some instances it has been necessary to section the adductor attachments in an effort to prevent dislocation and, at the same time, bring the hip into better position. Postoperatively the foot is carried in a small plaster of Paris boot in internal rotation, with a bar across the back of the boot for fixation.

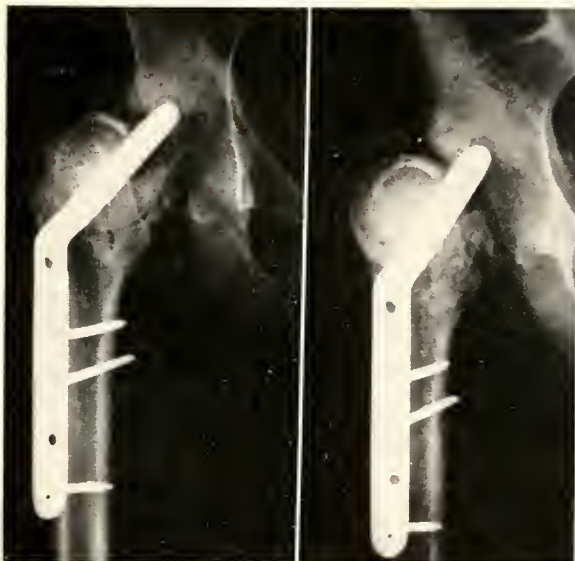


Fig. 1. Fracture-dislocation of the neck of the femur, with blade plate in the acetabulum and head dislocated.



Fig. 2. Following removal of blade plate and head of femur and replacement by Judet prosthesis.

Illustrative Cases

Case 1

A 32 year old Negro woman sustained a fractured left hip following an automobile accident on December 1, 1950. She was admitted to a hospital and open operation and the insertion of a blade plate were done. She was referred on March 6, 1951, because of the unsuccessful result of the surgery.

Roentgenograms (see figure 1) showed a blade plate impinging in the acetabulum, with the fractured neck and head apparently dislocated and out of the joint. Clinically the patient was unable to bear weight on the extremity, and had practically no motion of the hip joint, with rather marked swelling and edema of the joint.

Operation was undertaken on March 8, 1951. There was practically no neck remaining, and a modified type of Colonna procedure was undertaken, with the application of a Judet prosthesis to the remaining neck and trochanter. Some difficulty was found in maintaining the head in the acetabulum, but on April 14, 1951, the patient was dismissed from the hospital in a double hip spica, which was later removed on June 11, 1951. Satisfactory retention of the head in the acetabulum resulted. The patient was last seen on May 19, 1952, walking well but with a slight limp, using no crutches or cane, and with almost normal range of hip motion.

Case 2

A Negro woman, aged 40, reported to the office on October 24, 1951, walking on crutches. She had had an operation on her right hip for chronic arthritis three months before. An arthroplasty had been performed, and she had been told that the cup had slipped out.

Clinical examination disclosed marked swelling about the hip and the entire right lower extremity. There was very little hip motion present, and the patient could not bear weight on the extremity. The roentgenograms revealed a dislocated right hip with a dislocated Smith-Petersen cup. A large amount of callus was present around the hip joint (figure 3).

The patient was admitted to the hospital and an operation performed on November 2, 1951. The cup was removed and a Judet head placed upon the neck after removal of the head and the large amount of extra callus. Sectioning of the adductor tendon attachments was also done. The patient was dismissed from the hospital on November 21, 1951, using crutches.

She reported to the office on February 9, 1952. Although she still had some limitation of motion about the hip joint, she was walking well and without pain (figure 4).

Review of 26 Cases

The results of 26 hip arthroplasties, in 25 of which a Judet type of prosthesis either of stainless steel or plastic was used, are summarized below. In 1 case an Eicher type of prosthesis was used.

Eight of the patients in the series were men and 18 were women. Ages varied from 23 to 78, with a mean of approximately 41 years.

Indications for the surgical procedure varied. Traumatic arthritis was the etiology in 7 cases. In 2 of these cases direct trauma was the precipitating cause, 1 case being the result of a bullet wound in the left hip. Fracture-dislocation or dislocation of the hip had occurred in 5 cases, with resultant aseptic necrosis of the femoral head. Non-union of the femoral neck was the pathologic condition in 5 cases. In 3 of these aseptic necrosis of the head of the femur had developed. Marie-Strumpell arthritis with spontaneous fusion of the hips had occurred in 1 case;

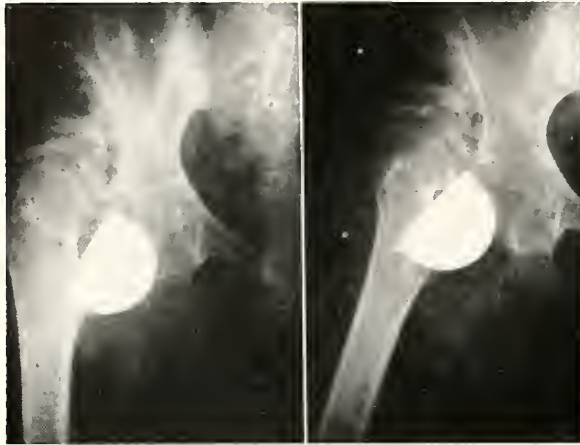


Fig. 3. Smith-Petersen attempted arthroplasty of the hip with dislocation of the hip and dislocation of the prosthesis.



Fig. 4. Removal of Smith-Petersen cup, reduction of dislocation, removal of excess bone, and introduction of Judet prosthesis.

rheumatoid arthritis, with either painful hips or ankylosis of one or both hips, in 3 cases. Septic hip, of approximately 10 years' duration, was the source of 2 cases. An attempt was made to insert a prosthesis to increase or improve motion.

Generalized osteoarthritis had occurred in 3 cases, slipped femoral epiphysis contributed 2 cases, and Legg-Perthes disease 1 case. In 1 case, dislocation of the hip had followed a vitallium cup arthroplasty and absorption of the femoral neck.

Complicating and aggravating factors in this series of cases were: bilateral fusion of the hip in 5 cases, bilateral fusion of the knees in 1 case, and flexion contracture of both knees in 2 cases.

The presenting symptom in most all of the cases was a painful joint with limitation of motion. This syndrome occurred in 21 of the cases. In 1 case pain was present in spite of almost full range of motion; this, incidentally, was in a recent dislocation of the involved hip. Four patients had no pain, but had insecure fibrous ankylosis. Flexion-adduction deformity was present in 8 cases. Shortening of one leg, varying from $\frac{1}{2}$ to $2\frac{3}{4}$ inches, was noted in 11 cases. A persistent limited external rotation deformity was present in 1 case.

The follow-up period in this series of cases has been from two to 13 months. The clinical end result was considered to be excellent in 3 cases, good in 13 cases, fair in 5 cases, and poor in 5 cases. Clinical evaluation was based upon (1) the amount of motion obtained; (2) the presence or absence of pain, and (3) the stability of the hip—and these are

essentially the bases of criteria of all hip surgery.

Complications

There were 4 postoperative dislocations of the prosthesis. In 3 cases, there was marked increase of callous deposit, chiefly in the anterior-superior portion of the hip. This may or may not have been associated with the osteotomized trochanter. All patients walked postoperatively with a limp or a definite Trendelenburg gait, in one instance despite a functional gluteus medius. In 2 cases the prosthesis was heard to "squeak" *in situ*, which apparently did not annoy the patient. Footdrop was present in 1 case, a supracondylar fracture of the femur occurred in 1 case, and a toxic psychosis developed in 1 case. Progressive shortening of the leg has been noted in 1 case, flexion-adduction deformity recurred in 2 cases, and non-union of the trochanter at the site of osteotomy was apparent in 3 cases. It is noteworthy that not one mortality occurred in the 26 cases reported here, and this has been the experience generally noted in this country and abroad.

Conclusion

At present these end results do not warrant the consideration of the Judet prosthesis as a pre-eminent tool in the armamentarium of surgical approaches to diseases of the hip. While we are hopeful that the "ceiling is lifting" in regard to advances in reconstruction surgery of the hip, it is still too early to draw dogmatic conclusions concerning the over-all value of the Judet or any other type of the many hip prostheses now

available. Just now it is most important that we undertake to classify the type of prosthesis indicated in each particular situation.

As stated some years ago by Speed, fracture of the hip is still the unsolved fracture. Let us hope, however, that the time may soon arrive when a discriminating student may be able to determine which classification or type of acutely fractured hip can be labelled as a prospect for pin fixation primarily, or for immediate insertion of a prosthesis. When and if this time arrives, a formidable clinical and economic hurdle for the patient will have been passed.

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Paraplegia—In rehabilitation, we must teach not only the tangibles but the intangibles—not by text, but by example. In the first lecture to the freshman class at New York University College of Medicine this year, I made this statement, which I deeply believe: "If you come out of your four years in this Department with but one thing, I shall feel your time has been well spent. That one thing is this: If you can get the same deep, inner satisfaction from teaching an old, battered hemiplegic, who has been relegated to a life in bed and wheelchair, to walk again and to take care of his daily needs, that you now get from making the diagnosis of leukemia, histoplasmosis, or some other obscure condition, then your time will have been well spent, for 75 per cent of your patients will be individuals suffering from chronic disease, disability or related problems. If you cannot get this satisfaction from providing them with a life of dignity and at least some degree of self-sufficiency, much of your time in practice, instead of being stimulating to you, will be boring, and under the circumstances you cannot practice good medicine.

There is much in the epidemiology of tuberculosis which we do not understand, and the disease has clinical aspects which we cannot explain. Its treatment is no more static now than it was thirty years ago, and it is just as true today as it was then that everything that is new is not necessarily true or good.—Charles Cameron, M.D., *The Lancet* (London), April 14, 1951.

RURAL MEDICAL CARE IN NORTH CAROLINA

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NORTH WILKESBORO

It has been said that necessity is the mother of invention. This trite but true statement, it seems to me, applies as well to the development of economic, social, and health movements as to the invention of machines and the myriad material gadgets that have been developed in this age of technology.

Origin and Development of the North Carolina Better Health Program

The statistics on draft rejections of our young men during World War II were the signal for a fight for improvement in health conditions throughout North Carolina. Since 1943 the health program, which was initiated by leaders in the medical profession in the state, has taken root and grown rapidly. Whether the statistics told the whole story of the staggering rejection rate is beside the point; time will not permit an analysis. Suffice it to say that they gave a rude awakening and spurred the forces interested in better health in our state to such heated action that the momentum of the drive has scarcely abated to this day.

The doctors who initiated the movement for better health in North Carolina were armed with the draft rejection statistics: white—40.9 per cent; colored—60.6 per cent. At the same time they called attention to the important fact that the rejection rate among the boys from our North Carolina orphanages was very low. The acceptance rate among this group was 98.6 per cent. This rate was explained by the fact that the boys in the orphanages had better medical care, lived under more sanitary and hygienic conditions, and were better fed.

Further investigation by the doctors disclosed that North Carolina ranked low among the states in infant and maternal mortality, in doctors per thousand population, and in the number of hospital beds per thousand population, 33 counties having no hospital beds at all.

The Poe Commission

This group of physicians appealed to Governor Broughton for help in the improvement

Read before the Seventh Annual National Rural Health Conference, Denver, Colorado, February 29, 1952.

of health conditions in North Carolina. In 1944 he set up the State Hospital and Medical Care Commission, composed of 50 leaders in agriculture, labor, industry, health, medicine, and other fields, to study health conditions in and out of the state. This Commission was later called the Poe Commission, after the chairman, Dr. Clarence Poe, editor of the *Progressive Farmer*.

After a year's study of health conditions in the state and nation, and after consulting with health experts in and out of the state, the Poe Commission made its report to the Governor, who presented it to the 1945 session of the General Assembly. The report stressed three objectives: (1) more hospitals, (2) more doctors, and (3) more voluntary prepaid insurance.

On recommendation of Governor Broughton's successor, Governor R. Gregg Cherry, the 1945 General Assembly endorsed the program and passed legislation supporting it. The bill provided for: (1) appointment of a 20 member permanent state agency to be known as the North Carolina Medical Care Commission, with an appropriation to finance the Commission's work from 1945 to 1947; (2) the adoption of the principle of contributions toward the hospitalization of indigents (\$1.00 per day per patient, totalling \$50,000 for 1945-1947); (3) an appropriation of \$55,000 for the establishment of a medical education loan fund for students who would agree to do rural practice for four years following their internship; (4) a county-by-county study of the state to determine the need for state aid in the construction and enlargement of local hospitals, to draw up a statewide plan for the construction of hospitals and health centers which might be required in order to comply with any federal laws, and to receive and administer any funds provided by Congress for such purpose; (5) expansion of the University of North Carolina Medical School to four years and construction of a 400 bed teaching hospital; (6) a study of the problem of medical training for Negroes.

Program of the Medical Care Commission

Subcommittees were immediately set up within the Medical Care Commission to study special health problems. A National Survey Committee composed of experts in education and medicine was set up also under the provisions of the law. After a careful survey had been made, the majority report of this

committee endorsed all parts of the health program and recommended that the four year medical school be located on the University campus at Chapel Hill.

The Hill-Burton Bill (Hospital Survey and Construction Act) was passed by Congress in August, 1946, and North Carolina became eligible to receive approximately 17 million dollars of federal money over a five year period. Every dollar of this amount was to be matched by two dollars of state and county money, for the construction of hospitals and health centers. The legislature of 1947 and 1949 appropriated approximately 20 million dollars of state funds to be used over a period of five years. The North Carolina state plan, the first to be approved by the federal government, provided that local funds would be required to supplement state and federal funds. Counties would be aided by the state on a basis of need, varying from 10 to 50 per cent. The 1947 General Assembly passed the Hospital Licensing Act for hospitals receiving federal and state aid, and also made students of dentistry, nursing, and pharmacy eligible for the students' loan fund.

To date, the Medical Care Commission program has implemented the State Better Health Program by the construction of 60 hospitals, 19 health centers, and 15 nursing homes. Three thousand nine hundred and seven new hospital beds have been provided for the state.

The Good Health Association

Another great lay organization which had much to do with the organized movement for better health in North Carolina was the North Carolina Good Health Association, organized in 1945. This organization consisted of over 200 leading citizens, representing the professions, industry, labor, agriculture, health groups, and others interested in the better health of our state. The intensive educational campaign conducted by this organization was largely responsible, not only for the passage of legislation necessary to the health program, but also for the success of the program of the Medical Care Commission in North Carolina. The campaign of the North Carolina Good Health Association was effectively conducted by Kay Kyser, through newspapers, pamphlets, the radio, movies, posters and the like.

The State Board of Health

Another great health organization which through the years has conducted a fine pro-

gram in the interest of better health in North Carolina is the State Board of Health. The Medical Society of the State of North Carolina was responsible for the birth of the State Board of Health in 1887. The Society succeeded that year in getting the legislature to appropriate \$100 for the operation of the Department of Health during the first year. Today several millions of dollars are spent yearly in connection with its program. Every county in North Carolina is served either by a county or a district health department. The State Department of Public Health, along with the local county health units, has laid well the foundation for the rural health program.

Approaches to the Nation's Rural Health Problems

State and national programs

During the past 30 or 40 years rural health and medical service over the entire United States has lagged far behind that of urban communities, and rural people have not benefited from developments in medicine and health as they deserved. The chief reasons for this condition have been the shortage of doctors and the lack of clinical and hospital facilities to attract doctors and specialists to rural communities. Economic and social conditions have played an important part in this situation. So have lack of transportation facilities, telephones and electricity, good schools, churches, recreation facilities, and other advantages enjoyed by urban citizens. Sanitary, hygienic, and nutritional conditions are not so good in rural as in urban communities.

These conditions are at last being partially corrected—at least in regard to transportation, electrification, telephones, and clinic and hospital facilities, giving hope to our rural people for a higher standard of living.

So much for the health programs designed for blanket coverage of rural people. These programs, of course, are necessary and serve well to a certain degree. However, they are not the final answer to fundamental rural health problems. Furthermore, they tend to become paternalistic, in some instances undemocratic, and finally dictatorial.

Program of the Rural Health Committee (A.M.A.)

Let us now consider an entirely different and more effectual approach to our rural health problem. I refer to the program of the

Rural Health Committee, which is the antithesis of the national and state approach to health and medical care. Here we speak the language of the common man and make an individual and grass roots approach to his health problems. It is not the desire of the medical profession to hand down just another program nor to dominate it. Rather, this program is designed to help the individual in thinking and planning intelligently and systematically for more healthful living. It is predicated on the fact that every citizen in a community has a definite responsibility in improving the health of his community. The idea is conceived in a spirit of unselfish devotion to the common good and nurtured in an objective, active, and co-operative program.

As you know, the Rural Health Committee of the American Medical Association resulted from the interest of certain farm groups who appealed to the medical profession for cooperation in an effort to solve rural health problems. Many of you have attended the annual National Rural Health Conferences since 1946, the year in which the first was held, and know something of the program as it has developed. You are aware of the spirit of cooperation which has existed between medical, health, farm groups, and others, and the grass roots approach, through health councils, which has been adopted. You know of Dr. Crockett's philosophy which he has stated so well: "Everything directly or indirectly affecting our daily lives affects our health."

North Carolina Rural Health Committee

The Rural Health Committee of the North Carolina Medical Society was appointed in 1946. This committee, of which I had the honor to be the first chairman, floundered about for some time in an attempt to determine what its function should be and where to begin work. After several months we realized that here was a Herculean task. At the same time we were not discouraged, and we felt that the project gave promise of real and worthwhile accomplishments in the field of health.

In 1947 the committee decided to ask the North Carolina Good Health Association, which had completed its program of education in the interest of legislation recommended by the North Carolina Medical Care Commission, to assist in the program. This they agreed to do, and through their very

efficient secretary, contributed largely to the success of our first annual State Rural Health Conference in February 1948.

Organization of Rural Health Councils

It became apparent early in the program of the committee that rural health problems could not be solved at the state and national level. It was decided, therefore, that the activities of the committee should center chiefly in the organization of the Rural Health Councils, as advocated by the Rural Health Committee of the A. M. A. The committee thought best to begin the program in a limited way, with two counties in the west and two in the east. It was felt that we must gain experience and develop patterns before trying to put the program on a statewide basis. It was further decided that a field worker well trained in health and organizational work was a *must* in the development of the Rural Health Councils. No doctor nor groups of doctors had the time to do the footwork and make the contacts necessary to assure ultimate success. It was also considered essential that the first step in organizing a Council should be to consult representatives of the local medical society and health department as to the feasibility of the project.

These and many other contacts were made by doctors. This procedure was followed in each of the counties in which councils have been organized.

Our committee was fortunate in selecting a field worker who was eminently fitted by training, experience, and personality for directing the organization of these councils. Miss Charlotte Rickman began work in the organization of the Alexander County Rural Health Council in October, 1948. She holds an A. B. degree from George Washington University and an M. A. degree in Community Organization for Health Education from the School of Public Health of the University of North Carolina. Furthermore, she comes from a family of doctors. She has done a grand job in securing the cooperation of all health groups in the counties in which she has worked. The response on the part of the people has been wonderful.

The projects are financed entirely by the North Carolina Medical Society.

Objectives and techniques

Let us try now to define a Rural Health Council. To me a Rural Health Council represents an organized, cooperative, and coor-

ordinated effort on the part of the individuals and groups to solve, on the local level, problems relating to the health of the community. It is a coordinated planning body, not a service agency. The objective is to bring together all the health resources of a community and use these to the best interest of the community. This implies an integrated plan embracing all the agencies such as agriculture, health (voluntary and involuntary), home economics, civic, and lay organizations, in one unified effort to work with people and not over them. It is important to make wide contacts and do much listening in order to help the people work out their problems and to sound out the social and economic conditions in connection with health problems.

It is important to educate rural people to the fact that there is a difference, as pointed out by Mr. Aubrey Cates, between medical service, which is purchasable, and health, which is not. Health programs imply many things that are within the realm of individual education and accomplishments, such as personal hygiene, proper nutrition, sanitation, proper health facilities for the prevention of communicable diseases, clinics, and accident prevention at home and on the highways.

In the development of Rural Health Councils in North Carolina, no definite plans or clear-cut patterns have been evolved as was hoped in the beginning. However, much valuable experience has been gained. The approach to the development of Rural Health Councils varies widely in different communities. It is evident that the consultant in such a movement, therefore, needs to be a resourceful and versatile thinker. Of prime importance is making clear the fact that the rural health program is not just another program being handed down, that no special interests are being served, and that the medical profession does not propose to dominate the organization. On the contrary, it should be pointed out that the program calls for people to do their own thinking and planning, and evolve their own programs for correcting whatever evils lie in the path to higher planes of living.

The Rural Health Council, therefore, represents, of necessity, a grass roots or individual approach to better health, reaching on up to the community, the county, and finally to state and national levels. It is a community organization which combines

the forces interested in improving local health conditions into one agency. This idea is conceived in a democratic spirit and nurtured in an atmosphere of freedom.

After making contact with the health forces in the county in which a Rural Health Council is considered as mentioned above, leaders in the different communities are called together, guiding principles are drawn up, a discussion of the needs is conducted, and finally an objective program is arranged. A health survey is needed early in the program in order to determine the various health forces at work in the community and evaluate the work already accomplished. The health needs of the community are considered, and a program is gradually evolved. These programs vary widely according to local needs, and may point up any health problem from baby clinic to the implementation of a hospital construction project.

The first project in the work of our first Rural Health Council, in Alexander County, was to implement the program of the local hospital, which was already underway. Our consultant helped direct auction sales, arranged for benefit movies, scrap drives, and other money-raising activities, in order to procure the community's share of construction funds. Other projects such as nutrition clinics and maternal welfare clinics have been gotten underway since. Several Councils have been organized in North Carolina, each with a different approach, with different objectives, and even under different names, but all interested in health education. Therefore, no definite patterns for Rural Health Councils has been developed.

Public response

Public response has been encouraging. We have had complete cooperation on the part of the local medical societies and local health forces, as well as from the State Health Council and the North Carolina State Health Department. Better understanding has resulted, and many of the grudges, grievances, and jealousies between the medical and health groups have disappeared. After all, are we not striving for the same goal?

Many more counties have appealed to the State Rural Health Committee for the organization of councils, but on account of lack of personnel, we have not been able to respond. It is hoped that in the very near future we can have more health educators helping our Rural Health Committee in pro-

moting the development of more councils. Because of the many contacts that have been made and the prodigious amount of work necessary in organizing a council, the growth of the program is slow. This, I think, is a healthy situation. We try to keep ever in mind the "eleven point program" evolved by the National Rural Health Committee.

Here I should like to recognize the splendid rural health demonstration that Dr. George Bond, chairman of the Rural Health Committee of the North Carolina State Medical Society, has made, singlehanded, in his own strictly rural area. He has so given himself to the promotion of better health and medical service to his people that he has gained the respect of his community, as a physician and as a citizen, and has had the sympathetic cooperation of the community in establishing a model rural health hospital service. As chairman of the Rural Health Committee, Dr. Bond has the additional advantage of a nine member advisory committee, representing mainly farm organizations. The medical profession of North Carolina is very proud of George Bond and his record.

Results of the North Carolina Good Health Program

The tangible results of the better health program in North Carolina are everywhere in evidence in the form of new hospitals, new health department buildings, a new four year medical school, many Rural Health Councils, a hospital for spastics, more tuberculosis sanatorium beds, mental health societies and clinics, a cancer control department in the State Board of Health, cancer detection and diagnostic centers, a home for incurable indigent cancer patients, an Alcoholic Rehabilitation Program and a home for alcoholics, an expanded school of public health, a State Health Council, and an active school health program. There is more evidence of health consciousness in our state than ever before, and more effective medical and health services. There is also in evidence greatly accelerated activity on the part of certain committees of the State Medical Society. I should like to mention the Committees on Rural Health and Education, Cancer, Legislation, Mental Hygiene, Emergency Medical Service, Chronic Illnesses, Services and Fees for Hometown Medical Care of Veterans, and many more.

Another health service which has been given great emphasis in our state is Blue

Shield and Blue Cross prepaid health and hospital insurance. The State Medical Committee on Prepaid Medical Service Insurance Plan has just completed a four year job in working out a comprehensive Blue Shield plan which will be placed on the market soon by the Hospital Saving Association, a Blue Cross—Blue Shield plan which our medical Society sponsored. A Blue Cross companion contract will be offered with it. One of our main objectives has been to broaden the use of this service. Particular attention is being given at the present to an attempt to bring more and more of the rural and low income and farm people into the possession of prepaid Blue Shield and Blue Cross insurance.

The intangible results in the Rural Health Program, it seems to me, are more important even than the tangible results. People who are really interested in better health conditions feel subconsciously that here is a wholesome, unselfish and all-embracing program, with unlimited possibilities for the good of the community. There is a changed attitude toward health matters that brings them down to an individual level and stimulates a wholesome and democratic approach to these common problems. To me the attitude of a person is everything. If his general attitude is right, a host of apparent shortcomings in his life immediately fade into insignificance, and he stands forth a free man. "As he thinketh in his heart, so is he." It is my humble opinion that in the realm of the intangible rests the soul and fundamental strength of the Rural Health Program. Let us foster this thought in promoting the program. It will give us strength in the hours of discouragement. The seeds that are presently being sown will slowly come to fruition, and we shall see sound development and a demonstration of democracy in its truest form—in action.

Conclusion

To the farm people, we of the medical profession, say, "Here's our hands in this great program which you have initiated for improving rural health conditions. It is democratic and provocative of thinking which makes for the preservation of our freedom. It is my feeling, that in the minds and hearts of our farm people resides the last truly great flame and bulwark of liberty. They live close to the soil and nature. They know

the inestimable value of our natural resources and their direct bearing on our health. Like the farmers of Lexington who long ago fired the first shots in our fight for freedom, the farm people of today will supply the means for staying the hand of the oppressor. We pledge them our support.

HISTOPLASMIN SENSITIVITY IN SELECTED AREAS OF NORTH CAROLINA WITH REPORT OF A CASE OF PROBABLE HISTOPLASMOSIS IN A CHILD

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The relationship between histoplasmin skin sensitivity and histoplasmosis is still poorly defined. Palmer⁽¹⁾, however, feels that the high incidence of pulmonary calcification in tuberculin-negative persons is due not to tuberculosis, but probably to histoplasmosis or an immunologically related fungus. If it is due to histoplasmosis, then there is a benign, self-limited or subclinical form of the disease which seems to be quite prevalent in the central and eastern parts of the United States. This view is suggested by Christie and Peterson⁽²⁾ in a study of 181 Tennessee children, of whom 70 per cent reacted to histoplasmin. Fifty per cent showed pulmonary calcification, but were negative to tuberculin. Other known forms of histoplasmosis are the chronic, disseminated type and the acute, fatal type.

Incidence and Geographic Distribution

Christie⁽³⁾ states that 30 per cent of the known cases of histoplasmosis have been reported in children. Prior to 1950, North Carolina was regarded as an area of low histoplasmin sensitivity. Palmer⁽⁴⁾ in 1945 tested 241 student nurses from the states of North Carolina, South Carolina, Georgia and Florida, and found that only 2.8 per cent were reactive to broth filtrate *Histoplasma capsulatum* (histoplasmin).

Read before the Section on Pediatrics, Medical Society of the State of North Carolina, Pinehurst, May 7, 1952.

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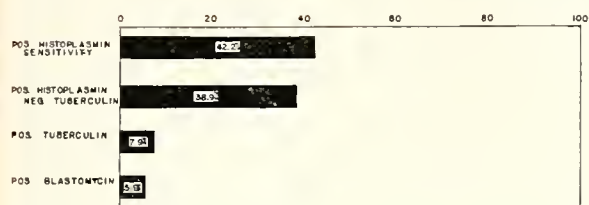


Fig. 1. Percentage of histoplasmin and other antigen* sensitivity in 203 school children*: Hyde County, 1950.

*Antigens: Tuberculin (PPD) and blastomycin.

**Negro and white children, aged 12-19; average age 14.5.

A recent publication⁽⁵⁾ showed that North Carolina has a higher incidence of sensitivity to histoplasmin than was formerly thought, and that there are marked sectional differences. There were areas of the state that showed an increase in pulmonary calcification in negative reactors to tuberculin. The areas of highest histoplasmin sensitivity are the eastern seaboard and, in particular, the northeastern areas of the state. The western mountain area had also a high number of positive reactors, but the Piedmont area had a low percentage.

Furcolow⁽⁶⁾ found similar geographic differences in histoplasmin sensitivity rates in Kansas and Missouri. He also found persons living in a rural environment more likely to show sensitivity than those living in urban environment. *Histoplasma capsulatum* has been isolated from the soil by Emmons⁽⁷⁾, and has been found in animals⁽⁸⁾ closely associated with humans, such as the dog, rat, cat, and horse. It has further been shown that this fungus is particularly dependent upon moisture for its growth. Furcolow⁽⁹⁾ found in a study of Kansas and Missouri that the counties having the highest rainfall have the highest percentage of positive reactors to histoplasmin. As a parallel, the eastern seaboard and western North Carolina have the highest rainfall in the state. The soil of the eastern seaboard region is in general a fine, silty loam, highly fertile and retentive of moisture. In a survey of Beaufort county⁽⁵⁾, it was found that 75 per cent of 147 adult persons with pulmonary calcifications reacted to histoplasmin, while 43 per cent of 388 persons selected at random in an adjoining county reacted to it. In view of this fact, it was of interest to survey histoplasmin sensitivity in school children in this area.

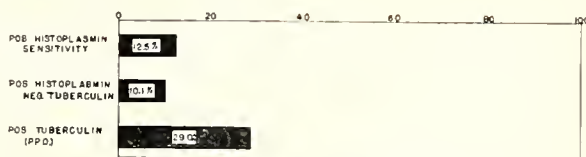


Fig. 2. Percentage of histoplasmin* and tuberculin sensitivity in 774 high school children*: Northeastern counties† of North Carolina, 1952.

*Lilly's histoplasmin (1:100).

**Negroes and whites aged 12-19; average age 15.5.

†Pasquotank, Perquimans, Camden, Currituck, and Chowan.

Material and Technique

Fresh dilutions (1:1000) of histoplasmin (lot H-40), obtained from Dr. Arden Howell of the U. S. Public Health Service Mycological Laboratory, and PPD of an intermediate strength (0.0001 mg. contained in 0.1 cc.) were used in a Hyde County survey. Histoplasmin (Lilly), in a dilution of 1:1000, and PPD of the same strength as above were used in a second survey. One-tenth of a cubic centimeter was injected intracutaneously and the reaction read in 48 hours. Induration of more than 5 mm. was considered a positive reaction.

First Survey

In Hyde County 203 school children with an average age of 14.5 years were tested. Of these, 42 per cent showed sensitivity to histoplasmin; 7.9 per cent had a positive tuberculin reaction, and 5.9 per cent a positive blastomycin reaction; 38.9 per cent showed a positive histoplasmin and a negative tuberculin reaction. Both Negro and white children were tested and no racial difference was found. (fig. 1).

Second Survey

High School students between the ages of 13 and 19 from Pasquotank, Perquimans, Camden, Currituck, and Chowan Counties were tested for skin sensitivity to histoplasmin and PPD. Twelve and five-tenths per cent of these showed positive histoplasmin sensitivity; 10.1 per cent were positive to histoplasmin and negative to tuberculin. Twenty-nine per cent were positive to tuberculin (fig. 2).

It is possible that the lower histoplasmin sensitivity was due to the different antigen used.



Figure 3



Figure 4

Report of a Case

A 10½ year old white girl, a life-time resident of Pasquotank county, was seen in the office of one of us (W.H.D.) in October, 1950, because of attacks of dizziness and profuse perspiration of one week's duration, and frontal headache, irritability, and loss of weight and appetite of one month's duration. The family history was noncontributory. The past history disclosed that she had been born of a normal pregnancy. Her diet, supplemented with the usual vitamins, was adequate; development was normal. She had had enuresis to the present time. She had had pertussis at 3½ years of age and mumps at 5 years, without complications; and had had a tonsillectomy at 3 years. She had been immunized against diphtheria, pertussis, smallpox, and typhoid, and had had a booster dose of the latter in 1948. A tuberculin patch test done recently in school was reported negative.

The initial physical examination revealed a well developed, well nourished, but pallid white girl of 10 years, 53½ inches tall and weighing 68½ pounds. The temperature was 100.7 F. rectally, pulse 92, respiration 24, and blood pressure 100 systolic, 60 diastolic. A mass was felt 5 fingersbreadth beyond the left costal margin. Because of marked pelvic and axillary hair and coarse facial features, she was referred to a gynecologist for endocrine consultation.

Laboratory studies showed 4,260,000 red blood cells with a hemoglobin of 82 per cent, and 12,700 white blood cells, with a differential count of 54 per cent segmented polymorphonuclears, 1 per cent stab forms, 40 per cent lymphocytes, 1 eosinophil, and 1 blastocyte. The sedimentation rate was 13 mm. per hour (Cutler). A urinalysis was negative.

The patient was referred to a Baltimore hospital for a more definitive diagnostic examination. The only significant physical finding in Baltimore was a palpable mass in the left upper quadrant, which extended from 6 to 7 cm. below the costal margin and was thought to be the spleen. The suggested

diagnosis was splenomegaly of undetermined etiology.

Roentgenograms of the chest disclosed an irregular patch of infiltration in the right upper lobe suggestive of a virus pneumonia, tuberculosis, or a metastatic process. (Fig. 3). Intravenous pyelograms, long bone films, and skull films were negative. Roentgenograms of the abdomen showed an enlarged spleen.

The fasting blood sugar was 76, the blood cholesterol 296, and a serologic test for syphilis negative. Sedimentation rates varied from 10 to 32 mm. an hour. Results of tuberculin skin tests were: O.T. negative; 1-10 PPD (second test dose) negative. Histoplasmin skin tests showed an increasingly strong positive titer of 1:1000 (edema 2.5 cm.) Cold agglutinin tests done on October 18, 1950, showed a positive titer of 1:80, but repeated tests on three other occasions were negative.

A biopsy of the bone marrow was initially reported as negative; in February, 1952, however, it was reviewed by Dr. Rich, who found a tubercule suggestive of histoplasmosis, brucellosis, or tuberculosis. Bacteriologic studies done on the bone marrow showed no growth at the end of one month. The hematologist reported that the bone marrow was normal. Malaria smears were repeatedly negative.

Two days after a bone marrow biopsy on November 2, 1950, the patient's temperature rose to 100 F. rectally, and there appeared on the left side of her pharynx a small flat ulcer, which healed in two days. On November 5 another ulcer appeared on the right side of the pharynx and was accompanied by fever, but cleared up by November 8. The patient was sent home with a diagnosis of histoplasmosis or virus pneumonia. She was placed on a high caloric, high vitamin diet and ordered to rest. A roentgenogram of the chest in February, 1951, showed some clearing of the pneumonia process (fig. 4).

On May 25 a tuberculin skin test was again negative, but a histoplasmin skin test was more strongly

positive (edema 4.5). The sedimentation rate was 9 mm. per hour. A roentgenogram of the chest showed infiltration in the base of the right upper lobe of the lung, and enlarged mediastinal nodes in the right hilum. No evidence of calcification was seen. On May 30 diarrhea, fever, and pain in the right lower quadrant of the abdomen developed in the patient. These were diagnosed as appendicitis by the local family physician, who performed an appendectomy. He reported a normal-looking appendix, however, and a smooth postoperative course.

Dr. Amos Christie saw the patient on August 3, 1951, after having reviewed all the previous reports and records. He reported that the complement fixation test on the blood at that time was positive, indicating persistence of activity.

The last roentgenogram of the chest taken October, 1951, revealed a new lesion in the second interspace of the left upper lobe, representing either a re-infection or a spread of the process. The complement fixation test for histoplasmosis was still strongly positive at this time.

When the patient was last seen on December 11, 1951, a progressive weight gain to 95½ pounds was noted. The temperature was 99 F. rectally, the hemoglobin was 99 per cent, the sedimentation rate was 11 mm. per hour, and the spleen was no longer palpable. A complement fixation test made on blood drawn March 13 was reported positive (1:256). The suggested diagnosis was probable benign pulmonary histoplasmosis.

Comment

Until recently histoplasmosis was thought to be invariably fatal. Now it appears that there are benign and intermediate forms of the disease as well as progressive infections. The most common form is the benign asymptomatic type, which closely resembles primary tuberculosis. The resulting pulmonary calcifications in the two diseases are indistinguishable by roentgen examination. These primary pulmonary case are so mild as to be almost asymptomatic, healing with only a residual skin sensitivity to histoplasmin and with pulmonary calcifications. Thus, it would seem that histoplasmosis may be much more common than the literature indicates, with the greatest prevalence in the area of the eastern slope of the Mississippi River Basin. This has been corroborated by Selective Service Induction roentgen studies.

With histoplasmosis, allergy analogous to that in tuberculosis develops. The complement fixation test may have a prognostic value, since apparently it is positive in active, progressive cases and negative in benign cases. The two tests, therefore, complement each other. In the acute, active case, the skin test may result in a negative reaction to histoplasmin. Thus it is of little value in diagnosing the fatal, infantile form of histoplasmosis. It might be considered comparable to the negative tuberculin test

so often seen in overwhelming miliary tuberculosis where an exhaustion anergy occurs. The benign form carries an excellent prognosis, since it is asymptomatic and requires no treatment.

Summary

1. Histoplasmin sensitivity is more common in North Carolina than was formerly thought, and is associated with pulmonary calcification in non-reactors to tuberculin as described by authors. This sensitivity is more prevalent in Western and Eastern North Carolina.

2. A survey of 203 school children in Hyde county showed that 42 per cent were sensitive to histoplasmin. In Pasquotank and adjoining counties 12.5 per cent of 774 high school children reacted to histoplasmin. Antigen of a different source was used in the two surveys, which might account for the marked difference in the percentage of reactors.

3. A probable case of mild histoplasmosis in a 10 year old child from Northeastern area of North Carolina is reviewed. Malaise, anorexia, and headaches were the only symptoms which were associated with a low grade fever, splenomegaly, and a patchy pneumonic infiltration.

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Tuberculosis control demands attention to numerous and varied emotional factors. There is the fear of diagnosis which prevents some from participating in mass x-ray campaigns. There is the psychological trauma connected with a diagnosis of tuberculosis. There are the problems involved in adjustment to the illness and the treatment regime. Finally, there is the problem of readjustment to normal social and occupational activity.—Robert H. Felix, M.D., Tr. 1950 Conf. Pub. Health A., N.Y.C.

THE MANAGEMENT OF GOUT

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WINSTON-SALEM

Gout is a condition for which much can be done therapeutically, not only in relieving the acute attack, but in preventing recurrent attacks and their secondary effects and complications. The most important factor in the management of gout is the recognition of its presence⁽¹⁾. Unfortunately, the clinical picture of gout is extremely variable, and it may mimic many other disease processes. Hence, its diagnosis depends upon a high index of suspicion in the physician.

Etiology and Complications

Gout is a disease of unknown origin which is characterized by an inborn defect in the body's ability to handle uric acid. Uric acid is an end product of purine metabolism, and may be derived from all nucleoproteins. Whether the increase of uric acid in the blood or serum of gouty patients is the result of excessive formation, insufficient excretion, or diminished destruction of urates in the body has not been conclusively demonstrated. Recent studies with radioisotopes have shown that a miscible pool of uric acid exists in the blood and tissues of both normal and gouty individuals, but that the size of this pool in the gouty patient may be 15 to 30 times as great as that found in the normal person. These same studies have suggested that when such a large amount of uric acid is present, much of it may exist as solid matter in the tissues⁽²⁾.

In patients with gout the incidence of arteriosclerosis, hypertension, degenerative vascular disease, nephritis, and pyelonephritis is increased⁽³⁾. It is these associated complications which make the diagnosis and proper management of gout so extremely important.

Diagnosis

Classically, gout is characterized by recurring episodes of acute paroxysmal arthritis followed by complete remissions of varying duration. The acute attack of gout is extremely painful and totally disabling, but in the periods of remission which are char-

acteristic of the disease, no objective or subjective findings may be present. Later, as urate deposits occur, chronic tophaceous gout may develop. This is characterized by the presence of gouty arthritis which is non-remitting and by the presence of tophus formation. Unfortunately, gout does not always present this classic textbook picture. For this reason, it should be suspected in anyone presenting a monarticular arthritis which comes on suddenly and subsides completely within a few days or weeks. Although the joints of the extremities, and particularly the great toe, are most commonly affected, any joint in the body may be involved. The affected part is exquisitely painful and tender; it is swollen and hot, and has a red or purplish color. Frequently the picture resembles an acute infection and it may be felt that surgery is indicated. In such cases a diagnosis of acute cellulitis, bursitis, osteomyelitis, tenosynovitis, or a septic joint is often made.

For an unexplained reason, attacks of gout most commonly begin during the night or early morning, and there may be no prodromal signs or symptoms. Precipitating factors are thought to be dietary or alcoholic excesses, slight physical trauma, psychic trauma, previous unrelated medications or surgery. Attacks may be self-limited and subside without any specific therapy other than analgesics. It is not uncommon for an attack to subside following the use of only a purgative.

In the early phases of acute gout tophi may be entirely lacking, even though a meticulous search is made of the more common sites—the ears, fingers, toes and elbows. If the disease has existed for some time and acute attacks have recurred often, then tophi are almost certain to be present. If a tophus is recognized or suspected, it should be opened with a sterile needle or scalpel blade and the contents examined microscopically. Identification of uric acid crystals is easy, and their presence is pathognomonic of gout.

When the disease becomes chronic and produces persistent deformity, gout may be confused with rheumatoid or hypertrophic arthritis. Roentgen examination may demonstrate destruction of joints or bone, but these changes are not diagnostic of gout and may be duplicated by other disease processes such as tuberculosis, sarcoid, and rheumatoid arthritis.

Read before the Section on Practice of Medicine and Surgery, Medical Society of the State of North Carolina, Pinehurst, May 6, 1952.

From the Department of Medicine, Bowman Gray School of Medicine, Wake Forest College, Winston-Salem, North Carolina.

The finding of abnormally high levels of uric acid in the serum helps to confirm a diagnosis of gout, but this test is by no means infallible. Even in patients known to have gout the levels may vary considerably and elevations may be transient, especially in the early stage of the disease. If the patient has taken large quantities of salicylates in an attempt to obtain some relief from pain, the uric acid level may be in the range of normal even during an acute attack. Uric acid levels may, of course, be elevated in patients with renal insufficiency who do not have gout. The presence of uric acid crystals in the urine is of no diagnostic importance, since it occurs commonly in normal individuals.

When gout is recognized, it is important not only for the future health and welfare of this individual, but should cause us to look for evidences of a gouty diathesis in other members of the family, females as well as males. Though less common in women, the trait and the disease do occur in both sexes. If latent cases of gout are found, prophylactic therapy may often prevent the appearance of clinical symptoms.

Treatment of the Acute Attack

Medications

Once gout has been diagnosed, treatment is by no means uniform in all cases. For the acute attack three medicines have been proved of value: colchicine, ACTH, and cortisone.

Colchicine has been employed for many years in the treatment of acute gout. Its mode of action is unknown, but in most instances it affords dramatic relief from the pain of gout. It must be given early in an attack—the earlier the better. The approved dosage schedule is one tablet of 0.5 mg. (1/120 grain) given at hourly intervals until the pain is relieved or until symptoms of toxicity are noted. The toxic effects (nausea, abdominal cramps, and diarrhea) are not serious if the drug is stopped as soon as they appear. If they become too annoying, paregoric or codeine may be used to relieve them. It is important to withhold colchicine for 48 hours after toxic symptoms appear. In many cases relief will be noted within a few hours, and relief is usually obtained within 24 hours. If the pain of acute gout is unbearable, as it often may be, the simultaneous administration of codeine, Demerol, or morphine is sanctioned.

More recently, ACTH has been found to be effective in most cases of acute gout which are refractory to colchicine⁽⁴⁾. A single intramuscular injection containing 100 mg. of a long acting preparation may be administered, or 25 mg. of the aqueous preparation may be given intramuscularly every six hours. The pain, swelling, and redness accompanying the attack may be completely resolved within 24 hours. However, ACTH does not replace colchicine in the treatment of acute gout, for some cases are refractory to one and not to the other. Further, it has been shown that if ACTH is given alone an exacerbation of the disease may take place when it is discontinued. Therefore, it is recommended that colchicine be given concurrently with ACTH, if the latter is to be used⁽⁵⁾.

Cortisone is perhaps inferior to ACTH in the acute phase of gout, since it does not produce so rapid or dramatic a response⁽⁶⁾. It does, however, have the advantage that it may be given orally. The dosage recommended is 200 mg. the first day, and 100 mg. each day thereafter. As a general rule, the drug should be discontinued after 48 hours if relief has not been obtained. Upon cessation of symptoms both cortisone and ACTH are to be discontinued when symptoms subside, but colchicine should be administered for several days thereafter.

A discussion of the treatment of acute gout would be totally inadequate if *cinchophen* were not mentioned. Cinchophen is still considered by many to be a most valuable drug in the management of this condition, but because of its possible toxic effect on the liver it is not so widely used today as formerly⁽⁷⁾. Until the safety of cinchophen is more positively established, it is wise to reserve its use for those cases of gout which are not satisfactorily controlled by other drugs and accepted measures. If it is used, it is given in doses of 0.5 Gm. three times a day during the acute attack. While it is being administered, the fluid intake should be kept at a minimum of 2 quarts a day and liberal amounts of carbohydrates should be given in the diet.

Salicylates serve a double purpose in the treatment of gout. Not only do they exert a considerable analgesic effect, but, perhaps more important, they increase the excretion of urates. Unfortunately, large doses of salicylates, 4 to 8 Gm. a day, are required and alkalinizing agents such as sodium bicarbon-

ate must be given simultaneously to prevent gastric irritation and to inhibit the precipitation of uric acid crystals in the urine. It is generally agreed that salicylates should be started during the attack and continued for an indefinite period.

General measures

The patient with acute gout can be made more comfortable in bed. Immobilization of the affected part is not imperative, but protection from accidental jolting, jarring or irritation is extremely important. The application of a glycerin pack, made by pouring glycerin between two layers of cotton, often will be very soothing for the affected joint. Warm, moist compresses may also be helpful, and at times the substitution of a cold compress affords the patient even more relief. Once the acute swelling, tenderness and redness subsides, the patient may be allowed to use the affected part in moderation, though return to full activity should be discouraged for two to three days after such a remission.

Interval Treatment

The management of the asymptomatic or interval phase of gout during which the patient has no objective or subjective evidences of the disease except an elevated level of uric acid in the serum, is as important as the treatment of the acute episode. Probably the most important factor in the prevention of further attacks is the diet. Since gout seems to occur more often in people who are overweight, the caloric as well as the purine content should be considered in planning the diet. An acceptable diet in the treatment of asymptomatic gout is one low in purines and low in fats. Normal diets contain around 1,000 mg. of purine per day, but a low purine diet should have no more than 100 to 200 mg. Milk, eggs, bread, cheese, fruits, and cereals are all low in purine content. Sweetbreads, anchovies, brains, liver, kidneys, sardines and gravy contain large quantities of purine. Restriction of the alcohol intake is likewise advised in the management of interval gout, but there are patients who find that they can take alcohol in moderation without ill effect. If there is a history of allergy to specific foods, the patient should exclude such food products from his diet.

In some cases, acute attacks of gout can be prevented by diet alone, but for the majority of patients concomitant salicylate therapy is necessary. Aspirin or sodium sali-

cylate should be given in doses of 5 Gm. a day for four days a week together with sodium bicarbonate, 6 to 8 Gm. a day.

More recently a benzoic acid derivative, Benemid, has been shown to be very effective in reducing the level of uric acid in the serum by increasing its excretion in the urine⁽⁸⁾. The urinary excretion of uric acid reaches a maximum effect within 48 to 72 hours after a dose of the drug, but continues high for longer periods. Benemid exerts this action in normal and gouty individuals alike, and so far appears to be relatively non-toxic when given in doses of 1 to 2 Gm. per day. The simultaneous administration of sodium bicarbonate is not necessary. It is available in 1/2 Gm. tablets and when patients are unable to tolerate the larger doses of salicylates required, Benemid may be substituted for an indefinite period. If further experience proves this drug to be as non-toxic as it now appears, it may be an invaluable aid in the therapy of asymptomatic gout.

There is growing belief that, in addition to the above measures, the daily administration of 0.5 mg. (1/120 grain) of colchicine may exert some prophylactic effect in the interval phase of gout.

Treatment of Gouty Diathesis

Since gout is a familial disease, it is well to perform uric acid determinations on the sera of the close relatives of the gouty patient. Most authorities now believe that if elevated uric acid levels are found, then administration of a drug such as sodium salicylate or Benemid should be carried out over an indefinite period. Time alone will reveal the value of this measure, but at least we should make every effort to detect any tendency to gout in other members of the family, just as we look for glycosuria in the families of diabetic patients.

Treatment of Gouty Arthritis

When chronic gout has led to deformity, the tophi may become large and may ulcerate spontaneously. If incised, they may fail to heal and they will then discharge urates chronically. There is nothing to be gained by incision of a tophus, except for diagnostic purposes, but at times complete removal is indicated. Currently it is suggested that, if surgery is contemplated, ACTH should be administered for two weeks preoperatively. This may cause softening of the tophus making excision easier and subsequent healing more prompt⁽⁹⁾.

Summary

Gout is a fairly common disease which frequently resembles other unrelated disorders. Because of the variable clinical picture, the diagnosis of this disease is often difficult. Its recognition is of extreme importance, however, not only for relief of the acute attack, but for the prevention of subsequent attacks and complications. Gout should be suspected whenever one is confronted with a monarticular arthritis which comes on abruptly, subsides completely, and tends to recur.

Management of the acute attack requires the prompt administration of colchicine. If this drug does not afford relief, ACTH or cortisone may be necessary. In the asymptomatic phase the administration of salicylates or possibly Benemid, and adherence to a low purine, low fat diet offer the best chance of preventing subsequent attacks and complications. It is felt that constant diligent care of the patient with gout or the gouty diathesis can minimize or even prevent the serious secondary effects and complications of this disease.

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Spiritual attributes of the heart. We physicians have the opportunity of inspiring our patients with courage, determination, optimism, equanimity and patience, all attributes of the spirit. The word "courage" comes from the word "heart" — *cœur* in French, *cor* in Latin; and it is courage above all things which is needed by many individuals who have cardiovascular disease. Such virtues as courage, optimism and patience may neutralize, somewhat at least, the effects of the alarm reaction, acute or chronic.—White, P. D.: *The Psyche and the Soma*, *Ann. Int. Med.* 35:1303 (Dec.) 1951.

CLINICAL EVALUATION OF CORTISONE IN OPHTHALMOLOGY*

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Cortisone is one of some 30 compounds to be secreted by the adrenal cortex. It was identified in 1936 by Mason, Myers and Kendall⁽¹⁾, and synthesized by Sarrett in 1946⁽²⁾. Some of the physiologic effects of cortisone on tissue are known, but many are poorly understood. The desirability of its action in many ocular diseases is not firmly established, and its use in these disorders must rest, at least in part, on an empirical basis.

Cortisone falls into group 1 of the adrenal cortex steroids, the principal effect of this group being on protein and carbohydrate metabolism, tending to produce a negative nitrogen balance and a relatively insulin-resistant hyperglycemia. There may also be increased potassium excretion, with sodium and chloride retention, leading to retention of fluid. In addition to these general metabolic effects, there are some very definite effects on local tissue reaction⁽³⁾. In inflammatory reactions, including those of bacterial, chemical, thermal, and allergic origin: (1) cellular exudate is reduced; (2) capillary permeability is reduced; and (3) there is less formation of granulation tissue and resultant scarring.

It is the purpose of this paper to report the results of local and systemic cortisone therapy in 143 cases selected from the histories of 600 patients as having sufficient follow-up observation to warrant inclusion. All patients included in this series were treated while hospitalized or in the out-patient department of the McPherson Hospital.

Method of Treatment

All patients receiving systemic cortisone were hospitalized, and a rather rigid routine was adhered to in all cases. First, a complete history was obtained and a physical examina-

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* 11-dehydro-17 hydroxycorticosterone-21-acetate. Manufactured by Merck and Co., Inc., Rahway, N. J.

tion which included roentgen examination of the chest, examination of the eyes, nose and throat, and dental survey was done. Laboratory work consisted of a urinalysis, a complete blood count, fasting blood sugar determination, and circulating eosinophil count. The patients then received 200 mg. of cortisone intramuscularly the first 24 hours, and 100 mg. daily thereafter as long as treatment was continued. Blood pressure was determined twice daily; urine examination and circulating eosinophil counts were performed daily. If the circulating eosinophil count fell below 100 per cubic millimeter, the dosage of cortisone was accordingly reduced. If the blood pressure became increased or evidence of fluid retention appeared, treatment was decreased or discontinued. In one instance it was necessary to discontinue cortisone because of marked restlessness and insomnia.

Those patients receiving local therapy received cortisone either in the form of local instillations of a 2.5 per cent solution in saline, one drop in the affected eye every two hours while awake; or in the form of a weekly subconjunctival injection of 0.5 cc. of a 2.5 per cent solution. Usually when improvement had been noted, the strength of cortisone was reduced to 1.25 per cent. After two weeks the frequency of instillation was reduced to three times daily. Treatment was then discontinued, or a maintenance dose of 0.5 per cent cortisone three times a day was instituted.

Results

The results of treatment are shown in tables 1, 2, and 3.

Uveitis

Granulomatous uveitis: Fifteen patients received cortisone therapy. Five were treated by the systemic route alone; 7 by topical instillations alone; 2 by both topical and systemic administration; and 1 by systemic, topical, and subconjunctival administration. Ten patients were improved, 5 were unimproved, and 3 had relapses. It is of interest that in 2 of the patients having relapses, the uveitis was thought to be tubercular—and the relapse was complete, proving extremely refractory to further treatment. The end result was not good.

In 1 patient who manifested good laboratory and clinical evidence of Boeck's sarcoid, granulomatous uveitis with secondary glaucoma developed. This patient received typhoid vaccine intravenously, topical corti-

Table 1
Results of Cortisone Therapy in 63 Cases of Uveitis

Type	No. Cases	Route of Administration			Results		
		Topical	Subconjunctival	Systemic	Improved	Not Improved	No. Relapses
Granulomatous	15	8	2	7	10	5	3
Nongranulomatous	9	7	4	6	3	1	1
Choroiditis	8	1	2	8	7	1	2
Postoperative uveitis	10	10	1	9	1	0	0
Iritis	18	14	6	18	5	0	0
Sympathetic ophthalmia	2	2	2	1	1	0	0
Harada's disease	1	1	1	1	1	0	0

sone, and atropine. The secondary glaucoma was controlled in one week; the uveitis was arrested in three weeks. This response was amazing. Vision improved from hand motions to 20/30. It is difficult to assay the effect of cortisone in this case, since the patient had also received intravenous injections of typhoid vaccine.

Nongranulomatous uveitis: Nine patients were treated with cortisone. In one case the agent was given by the systemic and subconjunctival routes; in 3 cases by the systemic and topical routes; and in 5 cases by the topical route alone. Six cases were considered improved, 3 cases were unimproved, and a relapse occurred in 1 case. Of the 3 patients who were unimproved on cortisone, 1 improved after intravenous injections of typhoid vaccine, and 1 after treatment of a chronic colitis which was thought to be the cause of his uveitis. One patient showing a relapsing course received a second course of systemic cortisone, the daily dosage being slowly reduced to 25 mg. daily; he was then maintained on topical cortisone and no further relapse occurred. Two patients had secondary glaucoma which was controlled by cortisone.

Postoperative uveitis: The 10 cases of uveitis presented here all followed cataract extraction. Nine of the patients received topical instillations of cortisone; 1 patient both topical and systemic cortisone. Nine patients were improved, and 1 was unimproved. These cases were selected primarily because the postoperative uveitis was classed as being rather severe.

Choroiditis: Eight patients received cortisone. All 8 received systemic cortisone therapy; 2 received subconjunctival injections

in addition; and 1 received systemic, subconjunctival, and topical cortisone therapy. Of the 8 patients, 7 were improved; 2 had relapses and required rather prolonged treatment. The unimproved patient showed early clearing of the vitreous; however, the lesion remained active. This patient, after seven days of treatment, showed an elevation of 40 mm. in blood pressure, and cortisone was discontinued. Perhaps the most striking feature noted in these cases was the rather immediate clearing of vitreous opacities.

Iritis: Eighteen patients received cortisone therapy. Of these, 3 received both systemic and topical treatment, 3 systemic treatment alone, and 12 topical treatment alone. All were considered improved; however, 5 patients had relapses which improved after cortisone therapy was resumed. Included is 1 case of granulomatous iritis in which the iris was apparently the only portion of the uveal tract involved. The remainder of the cases were either acute fibrinous iritis, or nongranulomatous iritis with some fibrinous reaction. In most cases, improvement occurred with remarkable speed.

Sympathetic ophthalmia: Two patients received cortisone therapy. In each instance, both the topical and systemic routes were used. One case followed cataract extraction and cortisone was started four months after onset of sympathetic ophthalmia in the other eye. Some immediate improvement was noted; however, a prolonged relapsing course followed, and no real improvement was thought to be due to cortisone. Eighteen months after initial therapy, while the patient was on a maintenance dose of 0.5 per cent topical cortisone given twice daily, she developed a corneal ulcer. Only *Staphylococcus albus* could be cultured from the ulcer, which has subsequently proven extremely refractory to all therapy, including extensive use of antibiotics. At present the ulcer is quiescent, but not entirely healed.

The second case followed a perforating wound involving the ciliary body. The wound was repaired and seemed to heal in a satisfactory fashion, the only postoperative finding being a low grade uveitis. The patient received chloramphenicol for almost two weeks after the injury; and when danger of infection was considered to be over, systemic cortisone therapy was started for the uveitis. Five days after the institution of therapy, the patient developed sympathetic ophthalmia; the wounded eye was enucleated four days

after the clinical onset of the disease. In this case, cortisone therapy was continued for approximately three months, and the outcome four months later has been very satisfactory. This case would seem to demonstrate clearly that cortisone will not prevent sympathetic ophthalmia.

Harada's disease: One patient with the syndrome of Harada's disease was treated with local and systemic cortisone. This patient had bilateral uveitis, bilateral retinal detachments, lymphocytosis of the spinal fluid, dysacusia, and alopecia. The patient received systemic therapy for one month and topical therapy for nine months. When the patient was last seen, the best corrected vision was 20/30, the retinal detachments had completely subsided, and the uveitis was quiescent.

Keratitis

Interstitial keratitis: Seventeen patients received topical cortisone and local atropine.* These patients were referred from the Eastern Medical Center, the rapid treatment center for syphilis in North Carolina. Some of the patients had not received adequate anti-luetic therapy; these received 6,000,000 to 8,000,000 units of penicillin. Ophthalmologic examination was done at McPherson Hospital at 10 day intervals. All 17 patients were considered improved. Seven of the patients had recurrences, 2 having a third recurrence. One patient required six months of treatment before the keratitis could be considered inactive, while in 2 cases the keratitis was entirely arrested in 10 days. In every case the relief of photophobia and lacrimation was dramatic.

Dendritic keratitis: Five patients received topical instillations of cortisone, 4 were considered improved, and one unimproved; 2 patients had a rather severe relapse after showing initial improvement, necessitating cauterization of the cornea. In the 5 cases reported here, cortisone would seem to have been of doubtful benefit since 1 case was unimproved and 2 cases showing initial improvement had relapses necessitating other treatment.

Herpes zoster: Five patients received cortisone; 4 of these were considerably improved, 1 was unimproved. One improved patient had a recurrence, during the course of

*Some of these cases have been previously reported by Crane, G. W., and McPherson, S. D., Jr., in the American Journal of Syphilis, Gonorrhea, and Venereal Disease, 35: November, 1951.

Table 2
Results of Cortisone Therapy
in 58 Cases of Keratitis

Type	No. Cases	Route of Administration			Results		
		Topical	Subconjunctival	Systemic	Improved	Not Improved	No. Relapses
Interstitial	17	17			17	0	7
Dendritic	5	5			4	1	2
Herpes zoster	5	5			4	1	1
Superficial punctate	7	7			5	2	2
Recurrent erosion	8	8			6 (current attack)		2
Fuchs' dystrophy	9	9			No case showed permanent improvement		
Keratitis from actinic burn	1	1			Immediate improvement	0	
Keratitis with vascularization	6	6			6	0	Maintenance dose for long period

which secondary glaucoma occurred and the inflammatory signs seemed to become refractory to cortisone.

Fuchs' corneal dystrophy: Nine patients with Fuchs' dystrophy received topical cortisone therapy. These patients all showed rather marked immediate improvement in the epithelium and striking reduction in stromal edema when this was present. Unfortunately, this improvement was invariably transitory in nature. At no time was any improvement in the appearance of the endothelium noted, and any improvement in visual acuity was transitory and of small degree. No permanent improvement was seen in any case.

Superficial punctate keratitis: Seven patients with superficial punctate keratitis received topical applications of cortisone; 4 patients showed improvement, while 2 cases were considered entirely unimproved. One patient, later treated with vitamin A, cleared satisfactorily, although he showed none of the generally recognized characteristics of vitamin A deficiency. Another case with a history of previous allergy with desensitization cleared quickly when cortisone was given

Table 3
Results of Therapy in 22 Cases of
Miscellaneous Ocular Disorders

Diagnosis	No. Cases	Route of Administration			Results		
		Topical	Subconjunctival	Systemic	Improved	Not Improved	No. Relapses
Episcleritis	6	6			6		1
Nodular scleritis	2	2		1	1	1	0
Vernal conjunctivitis	6				4	2	4
Coats' disease	1	1		1		1	(complete)
Malignant exophthalmos	1			ACTH		worse	
Corneal transplant	4	4	0	0	4		0
Ocular pemphigus	2	2		2 ACTH	0	2	

locally but showed a tendency to relapse. This patient was given a maintenance dose of 0.5 per cent cortisone three times daily for two months, and has had no relapse to date.

Keratitis with vascularization: Six patients with superficial keratitis with vascularization received topical cortisone therapy. All showed improvement without relapse. However, these patients generally received a maintenance dose of 0.5 per cent cortisone applied topically three times daily for as long as three months after initial clearing. These were all longstanding cases and it was difficult to establish the etiology. All had been observed for a number of years to show alternating periods of quiescence and activity. All the patients improved subjectively, and 4 of the 6 showed some improvement in vision.

Recurrent corneal erosion: Eight patients received topical applications of cortisone. Three had previously been treated with a variety of drugs without relief. All patients experienced almost immediate relief, and the current attack was terminated in one week. Recurrences in two cases developed which responded promptly when cortisone therapy was resumed.

Keratitis from flash burn: This patient had a rather severe keratitis from using an electric welding torch. One eye had been previously enucleated. He was given a 1.25 solution of cortisone to use locally every two hours. When seen two days later, he stated

that he was perfectly comfortable within two to three hours after beginning treatment. It was four days after the burn before the cornea was normal to slit lamp inspection. Since the keratitis in this case is entirely a reaction to an irritating stimulus, cortisone should be ideal, as it blocks the undesirable reaction.

Miscellaneous disorders

Episcleritis: Six cases of episcleritis were treated topically with cortisone. All cases were considered improved. Although a relapse occurred twice in 1 case, remission was very prompt after the resumption of therapy.

Nodular scleritis: Two patients with nodular scleritis received cortisone. One was treated first with topical cortisone, with absolutely no improvement. Systemic cortisone was then administered, with dramatic improvement. The second case occurred in a patient with far advanced uveitis who previously had had severe secondary glaucoma. Treatment resulted in moderate subjective relief, but no visible objective change.

Vernal conjunctivitis: Six patients exhibiting clinical appearance of vernal catarrh received topical applications of cortisone; 2 of these showed no improvement, and 4, while temporarily improved, had complete relapses when cortisone was discontinued. In 2 cases the temporary improvement could not be maintained when cortisone therapy was resumed, the condition seeming to become refractory in two to four weeks. Results in these 6 cases were quite unsatisfactory.

Malignant exophthalmus: The use of ACTH in one patient with this disorder seemed to accelerate the progress of the exophthalmus. Four days after the institution of ACTH therapy, the eyes practically prolapsed from the orbit. The patient required bilateral Shugrue orbital decompressions with marginal tarsorrhaphies.

Ocular pemphigus: Two cases of ocular pemphigus were treated. Both patients received ACTH and later topical cortisone. No beneficial results were seen in either case, further progress being noted regardless of treatment used.

Corneal transplants: Topical cortisone was administered to 4 patients after a penetrating corneal graft had been performed, beginning on the seventh postoperative day in two eyes, on the eighth postoperative day in one, and on the sixteenth postoperative day in the remaining eye. No adverse effects on wound

healing were noted. The cornea cleared quickly, and in no instance did the graft become vascularized.

Comment

Certain facts concerning the influence of cortisone on the clinical course of various ocular disorders have been noted by a number of observers in the past few years. These are of value in determining the advisability of cortisone therapy in most cases. Perhaps the most dogmatic statement which can be made is that the use of cortisone is unwise in any instance where a straightforward bacterial invasion is a prominent feature⁽³⁾. Cortisone inhibits the normal defense mechanism, leaving bacteria free to spread almost at will.

Thus in the present series, the results in the treatment of uveitis have been irregular. This irregularity probably reflects our inability to state that bacteria are or are not present in any given case of uveitis. In accord with this, the two severe instances of relapse occurring in granulomatous uveitis were in cases thought to be tuberculous⁽⁵⁾. Similarly, the excellent results obtained in the treatment of postoperative uveitis represent the response that may be expected in treating uveitis due to trauma rather than to direct infection. The good result obtained in treating the one case of Harada's disease is probably explained on the same basis. In this instance, bacterial, fungal, and viral inoculations were made of aqueous humor, subretinal fluid, spinal fluid, and blood. All reactions were negative, indicating that, at least at the time of institution of therapy, no infectious agent could be demonstrated.

The excellent results obtained in treating acute fibrinous iritis may be explained by two facts. First, the location of the lesion lends itself readily to intensive topical therapy, permitting a high concentration of the drug in the involved tissue. Second, the reaction of the eye is seemingly out of proportion to any known causative factor, and cortisone is therefore able to effect marked improvement by blocking vascular and cellular responses.

The results obtained in the treatment of various types of keratitis in the present series fall into the pattern to be expected in view of the mechanisms concerned in the disorders. Thus the excellent results obtained in interstitial keratitis might be anticipated

in corneal disease, in which the chief manifestations are inflammatory and in which the presence of etiologic organisms has not been adequately demonstrated. The same might be said of recurrent corneal erosion, which is predominately a post-traumatic disorder. Conversely, the poor results obtained in Fuchs' corneal dystrophy are to be expected in a disorder which is predominately degenerative.

The irregular results obtained in the viral keratitides, simplex and zoster, may be due to the presence or absence of the virus in the tissues at the time that treatment was instituted.

Episcleritis has long been considered an allergic manifestation of rheumatoid arthritis, gout, or focal infection⁽⁶⁾. The prompt and sometimes dramatic improvement observed in these 6 cases lends support to this concept of the etiology of the disease.

The poor results obtained in the treatment of vernal conjunctivitis are difficult to explain. Possibly the 6 cases reported herein had undergone such advanced anatomic changes that cortisone afforded only temporary subjective relief without affecting the pathologic process. From previous observation, it would seem that antihistaminics are more effective in the control of symptoms in this disorder⁽⁷⁾.

The effect of cortisone in maintaining the clarity of corneal grafts offers to corneal surgery a useful adjunct which has not been previously available. With cortisone, one is able to block corneal vascularization and to decrease corneal edema. In the 4 reported cases there was no instance in which the use of cortisone seemed to interfere with wound healing⁽⁸⁾.

When first using cortisone, it was our practice to discontinue the drug when satisfactory clinical improvement had been noted. Relapses occurred in a high percentage of cases. In recent months we have followed the general routine of reducing dosage in systemic therapy or the strength of solution in topical therapy after satisfactory improvement has occurred. If improvement is maintained, patients are gradually "weaned" from cortisone. It is our impression that the percentages of relapses has been substantially reduced by this scheme of therapy.

Summary

1. The results of treatment of certain ocular diseases with topical and systemic cortisone in 143 patients is reported.

2. Cortisone was found to be most effective in the treatment of inflammatory disorders of a hypersensitive nature in which no etiologic organism could be demonstrated.

3. The high incidence of relapse occurring after the cessation of cortisone therapy indicates that cortisone controls the inflammatory manifestations of these disorders with no specific curative effect.

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THE LOCAL USE OF CHLOROMYCETIN IN INFECTED EARS*

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Since Chloromycetin⁽¹⁾ was introduced in 1948, it has proved to be a valuable drug in the treatment of bacterial infections. It is of particular value in treating diseases caused by various gram-negative organisms⁽²⁾, less so in those caused by gram-positive and acid-fast organisms.

Since gram-negative organisms are responsible for many ear infections, it was felt that the local use of Chloromycetin was warranted in treating these infections, and this report concerns the results of such local therapy.

Materials and Method

The cases reported were not selected. They

Read before the Section on Ophthalmology and Otolaryngology, Medical Society of the State of North Carolina, Pinehurst, May 7, 1952.

From the Department of Otolaryngology, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.

* Chloromycetin in this study was made available through the courtesy of Parke, Davis and Company, Detroit, Michigan.

Table 1
Age and Sex Distribution

Age in Years	Male	Female
Up to 10	4	4
11-20	9	6
21-30	9	8
31-40	2	5
41-50	4	6
51-60		2
Total	28	31

represent consecutive cases of draining ears seen in the Otorhinolaryngology Out-Patient-Clinic of the North Carolina Baptist Hospital and in the private practice of one of the authors.

A culture of the drainage was made before any further manipulation was carried out. In approximately 25 per cent of the cases no report of the culture is available. After the culture was made, the ear was thoroughly cleaned with a cotton-tipped applicator and the diagnosis of external otitis or otitis media was established, with further notation as to the location of the perforation in the tympanic membrane when present. The patient was then given Chloromycetin and directed to place 5 drops of the solution in the affected ear four times daily without cleansing the external canal. Follow-up care was given and observation made at regular intervals.

The Chloromycetin solution supplied the patient was prepared by adding the contents of a 2 cc. ampoule containing 0.5 gm. of Chloromycetin in a highly hygroscopic liquid base (acetyl dimethylamine) to 28 cc. of 70 per cent alcohol. Thus the individual dose was 5.5 mg. of the drug.

Fifty-nine patients, with 63 diseased ears, were given 64 courses of treatment. Ten of these did not return for follow-up; therefore, the records of 54 courses of therapy are being analyzed. Twenty-eight of the patients were male and 31 were female. Ages ranged from 4 months to 56 years (table 1).

The duration of therapy varied from four days to six months, 33 of the 49 patients requiring treatment for 30 days or less. Only 3 were treated as long as three to six months (table 2).

Bacteriology

Fifteen organisms were cultured from 40 ears of 36 patients. The most common organism was staphylococcus, which was cultured from 18 ears. Diphtheroids were the next most common, being found in 11 ears.

Table 2
Duration of Therapy

Duration	No. Cases
4-14 days	18
15-30 days	15
1-3 months	13
3-6 months	3
Total	49
Shortest	4 days
Longest	6 months

Table 3
Organisms Cultured and Response to Therapy
36 Patients 40 Ears

Organisms	Gm.	No. Ears	Dry	Improved	No Change
Staphylococcus aureus	+	18	16	2	
Diphtheroids	+	11	10	1	
Pseudomonas aeruginosa	—	8	8		
Proteus mirabilis	—	8	4	4	
Aerobacter aerogenes	—	6	5		1
Alcaligenes faecalis	—	5	4		1
Beta streptococci	+	4	3		1
Coliform	—	2	1	1	
Neisseria catarrhalis	—	2	2		
N. Sicca	—	1	1		
Pneumococcus	+	1	1		
Pr. rettgeri	—	1	1		
Pr. morganii	—	1			1
Alpha hemolytic streptococci	+	1	1		
Paracolon bacillus	—	1	1		

Pseudomonas and *Proteus mirabilis*, found in 8 ears, and *Aerobacter aerogenes*, in 6 ears were next. The remaining 10 organisms were found in from 1 to 5 ears each. Approximately half of the ears yielded mixed cultures. Eighty-two and two-tenths per cent of these organisms responded to therapy, 11.5 per cent showed improvement, while 5.7 per cent showed no change (table 3).

Results

Eleven cases of otitis externa (6 acute, 5 chronic) were treated, and all ears became dry.

One case of acute otitis media was treated without improvement. This patient subsequently underwent simple mastoidectomy.

There were 23 cases of chronic otitis media, 20 with central perforation, and 3 with marginal perforation. Nineteen of the ears with central perforations became dry, while one showed marked improvement. Only 1 ear with a marginal perforation became dry, while 2 showed no change. One of these patients subsequently underwent a radical mastoidectomy, and after a second course of treatment the ear became dry.

Table 4
Diagnosis and Results in 49 Patients
with 53 Infected Ears
(54 Courses of Therapy)

	No. Cases	Dry	Per Cent	Improved	Per Cent	No Change	Per Cent
External Otitis							
Acute	6	6					
Chronic	5	5					
Acute Otitis media	1					1	
Chronic Otitis media							
Central							
perforation	20	19		1			
Marginal							
perforation	3	1				2	
Radical mastoid-ectomy cavities							
Cholesteatoma	15	9		6			
Fenestration	4	2		2			
Totals	54	42	78	9	17	3	5

Fifteen patients with radical mastoidectomy cavities were treated. Nine of these cavities (including that of the patient noted above) became dry, while 6 showed marked improvement. Four patients had draining ears following fenestration. Two of these were cured, while the other 2 showed improvement.

Of the 54 courses of therapy, 42 (78. per cent) resulted in dry ears, nine (17 per cent) in marked improvement, while only three (5 per cent) resulted in no improvement (table 4).

Three patients had an allergic reaction characterized by swelling, tenderness, and redness of the ears. In each case the reaction subsided within 48 hours after the therapy

was discontinued. Two patients had no further drainage, and one was greatly improved. The onset of the reaction was two weeks, six weeks, and three months, respectively, after the beginning of therapy.

These results compare favorably with those of other investigators using other drugs locally in treating infected ears (table 5).

Summary

Results of 54 courses of treatment with Chloromycetin used locally in infected ears are presented. Seventy-eight per cent of these courses resulted in dry ears. Three patients showed a sensitivity reaction.

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Table 5
Comparison of Results Obtained in Local
Therapy of Infected Ears

Therapy	Cases	Dry	Improved	No Change	Sensitive	No Follow-up
Glycerite of H ₂ O ₂ ⁽³⁾ (Otitis media)	130	94 (72%)	12 (9%)	10 (8%)	0	14 (11%)
Sulfamylon ⁽⁴⁾ (Otitis externa and Otitis media)	164	119 (72%)	?	?	?	?
Sulfamylon ⁽⁵⁾ (Otitis externa and Otitis media)	141	141 (100%)			0	
Furacin ⁽⁶⁾ (Otitis externa and Otitis media)	142	87 (61%)	44 (31%)	7 (5%)	3	
Furacin and Cresatin ⁽⁷⁾ (Otitis externa)	120	105 (84.1%)	19 (16.1%)		0	
Streptomycin ⁽⁸⁾ (Otitis externa and Otitis media)	27	15 (55.5%)	7 (25.5%)	5 (18%)	0	
Sulfamylon with Streptomycin ⁽⁹⁾ (Otitis externa and Otitis media)	29	11 (38%)	11 (38%)	6 (20%)	3	1 (3%)
Polymyxin-Bacitracin ⁽¹⁰⁾ (Otitis externa)	89	"Uniformly favorable results"				
Aureomycin ⁽¹¹⁾ (Otitis externa)	46	"Drug of choice in these infections"				
Chloromycetin (Otitis externa and Otitis media)	64	42 (66%)	9 (14%)	3 (5%)	3	10 (15%)

Discussion

Dr. Ralph Arnold (Durham): Dr. Ausband has certainly presented a group of illuminating figures. These results exceed my fondest expectations for the patients I have treated locally with Chloromycetin or any other drug. I would like to hear the experience of others who have used it.

Dr. George B. Ferguson (Durham): While I do not have any figures at hand, I am afraid that these results also exceed our best expectations. We have obtained some excellent results with Gantrisin solution, and I am sure that some of the new antibiotics are going to have startling results. By carefully arriving at the drug of choice and making cultures prior to any form of treatment, we are certainly going to increase the percentage of favorable results. On this basis, the results reported here may not be greater than should be expected.

Dr. B. W. Armstrong (Charlotte): I do not want to disparage the good results reported by Dr. Ausband. The authors reviewed several articles in which the rate of cures was found to be from 38 to 80 per cent. That indicates that many patients with infected ears will get well regardless of what treatment they receive. How is it that good results are obtained with such a variety of agents? Some of us use the old-fashioned boric acid and alcohol, and others 10 per cent silver nitrate. The important thing is not what you use, but how well you clean the ear and teach the patient to keep it clean.

Dr. Harrill: I would like to emphasize that we selected these cases primarily to evaluate this drug. The results obtained are no better than those achieved with other remedies. As you recall, better results were obtained in ears with central perforations. That is the type of case in which we would expect the best response.

We had no success with patients who had marginal perforations. I doubt seriously that any drug I have used in the conservative management of a chronic ear infection with a marginal perforation is any better than the treatment I used during my residency some years ago—namely, keeping the ear clean, using alcohol, removing granulation and polyp tissue, and applying silver nitrate or chromic acid, or some other agent. That type of infection does not respond well to conservative therapy.

We do not claim that Chloromycetin is better than any other drug. We merely present these cases as a study. One may draw his own conclusions.

Dr. Arnold: I was interested in having this discussion brought up so that no one would go away with the misconception that we have a new panacea for running ears. In my opinion, we are still far removed from that panacea.

Demand for spectacles: The attitude of the public to the question of wearing glasses has altered remarkably during the last thirty years. When I began to practice it was a matter of difficulty to persuade a comely young lady to disfigure herself, even when the need for wearing glasses was apparent. Today many of the fair sex are frankly disappointed when informed that glasses are unnecessary. In my opinion spectacles should be prescribed for two reasons only: to correct defective vision and to relieve symptoms which can reasonably be attributed to errors of refraction. If this is accepted as a basic principle I am convinced that a large percentage of the spectacles worn today are unnecessary—Sichel, A.W.S.: *Some Impressions of an Ophthalmologist*, Brit. M.J. 2:1409 (June 23) 1951.

TREATMENT OF SEPTAL ABSCESS

WARDELL H. MILLS, M.D.

GREENSBORO

Since the advent of the antibiotics, very few cases of septal abscess have been encountered. The scarcity of recent literature on the subject is probably due to the fact that only a few cases are seen by any one physician. In cases where the septal cartilage was destroyed, most otolaryngologists have been content to drain the abscess, and if a saddle deformity developed it was left alone or turned over to the plastic surgeon for correction.

Since otolaryngologists do intranasal surgery and have a knowledge of nasal anatomy, they should be able to correct external nasal deformities. Prevention of saddle deformity following septal abscess would be a progressive step in otolaryngology. The term saddle deformity is used here to describe the depression that often develops in the area of the septal cartilage following septal abscess.

Etiology

The most comprehensive list of etiologic factors in septal abscess was compiled by Beck⁽¹⁾, as follows:

1. Nasal trauma
2. Endonasal operation
3. Inflammatory condition of the nose and its soft parts (furuncles, erysipelas, suppuration of accessory cavities)
4. Abscess of dental origin
5. General infections such as typhus, scarlet fever, sepsis, variola, and measles
6. The so-called idiopathic abscess, a classification not accepted by most authors.

Incidence

Statistics on the frequency of septal abscess show a wide variation. Beck states that in a large clinic one will not see more than 3 or 4 cases a year. In 1924, Yerger⁽²⁾ reported an incidence of one septal abscess to every 526 cases of septal disease. In 1929, Rosenberger⁽³⁾ reported one septal abscess in every 3,000 cases of nasal disease. In a review of 11,239 hospital admissions to an ear, nose and throat service, I found 4 cases of septal abscess, or an incidence of 1 case in 2,809. The incidence will probably be decreased in the future by the use of antibiotics.

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Treatment

It is generally agreed that incision and drainage, in conjunction with antibiotics, is the treatment of choice in septal abscess. Lederer⁽⁴⁾ recommends incision, irrigation of the cavity with hydrogen peroxide, followed by some alkaline antiseptic. Vorhees⁽⁵⁾ recommends incision, irrigation, and treatment of the cavity with pure phenol, followed by 95 per cent alcohol. Ballinger⁽⁶⁾ advocates free incision, sulfonamides, and penicillin. Kernan⁽⁷⁾ recommends incision, followed by removal of a piece of mucosa to obviate the necessity of a drain, although a small piece of rubber may be inserted for 24 hours. The cavity should be cleansed by suction or irrigation daily.

Abscess of the nasal septum with total destruction of the cartilage often results in a saddle deformity. Two schools of thought have developed as to why depression of the nose follows removal of the septal cartilage. The first school, which comprises most surgeons, attributes the deformity to the loss of support furnished by the nasal septum. This concept has been challenged by a second school, with Fomon as its chief advocate. Fomon⁽⁸⁾ states that "under static conditions the septum is merely a redundant member offering no support whatever: that it functions only as a reserve safety factor when external crushing forces or internal tension stresses disturb or distort its equilibrium." He further states that depression of the nose following a submucous septal resection too near the dorsum is not due to lack of septal support but to the development of internal stresses arising from cicatrization of the deskeletonized connective tissue. He offers in support of this theory the fact that if a depression of the nose develops after an extensive septal resection in this location, it usually occurs not immediately after the operation but some weeks later. If the septum was the supporting element, deformity should occur immediately.

Extensive submucous resection can be performed and a saddle deformity prevented by inserting autogenous or isographs of nasal septal cartilage. Absence of a deformity in these cases may be due to the support given by the graft of septal cartilage, or, as Fomon believes, to the prevention of internal stresses arising from cicatrization. If Fomon is correct, a successful cartilage graft follow-

ing septal abscess should prevent saddle deformity. The following is a report on the treatment of three cases of septal abscess:

Case Reports

Case 1

A 17 year old boy received a blow on the nose eight days before he was seen in the office. Three days after the injury there occurred a progressive obstruction of the left side of the septum. Physical examination was essentially negative except for a small abscess of the left side of the septum. The abscess was incised and about 2 cc. of pus removed. A small piece of mucous membrane was punched out and a drain inserted. There was very little destruction of septal cartilage. The patient was given tripazine and penicillin, and the abscess cavity aspirated daily. Under this treatment he recovered in seven days without a deformity.

Case 2

A 16 year old boy reported an abscess of the gum margin over the left upper incisor tooth and progressive obstruction of the nose for eight days before first being seen in the office. A week previously he had had influenza, with temperature rising to 104 F. The abscess of the gum was incised by a dentist, but the nasal obstruction increased. For five days before coming to the office he had complete obstruction of the nose. Penicillin therapy had been started, but because of nausea was discontinued after 6 tablets had been given.

Physical examination revealed marked tenderness and swelling of the dorsum of the nose, extending to the malar region on each side. Each nares was completely obstructed by a fluctuant swelling of the nasal septum. A draining abscess was present on the gum margin of the left upper central incisor tooth.

An incision was made in the swollen septum and about 15 cc. of foul-smelling pus and several pieces of necrotic cartilage were aspirated. The septal cartilage appeared to be completely destroyed. A small piece of septal mucous membrane was punched out and a rubber drain inserted. A culture of the pus from the abscess failed to show any growth, but a smear showed many organisms, with diphtheroids and streptococci predominating. Treatment with aureomycin and Gantrisin was started, and the abscess cavity suctioned daily. Three days later the dental abscess was again incised. The septal abscess healed in about eight days, and there was adequate breathing space. Three months later there was a marked saddle deformity of the nose.

Case 3⁽⁹⁾

A 64 year old woman was admitted to the hospital, stating that she had had a head cold for the previous two weeks. During this period she had noticed increasing pain and swelling on the dorsum of the nose along with nasal obstruction. The obstruction became complete, and the sense of smell was lost. There was no history of trauma or infectious diseases.

Physical examination revealed the dorsum of the nose to be greatly swollen and painful to palpation. There was bilateral obstruction of both nares by a fluctuant swelling of the septum. The rest of the physical examination was essentially negative. The blood count showed a moderate degree of anemia. The serologic test for syphilis was negative. A culture of the septal abscess showed non-hemolytic *Staphylococcus aureus*.

Penicillin was given throughout the patient's hospitalization. On the day of admission, the left side

of the nasal septum was incised and approximately 20 cc. of pus and several pieces of necrotic cartilage were aspirated. The mucoperichondrial flaps were greatly thickened, and the entire nasal septal cartilage was found to be destroyed. Edges of the vomer and perpendicular plate of the ethmoid were visible through the incision of the abscess cavity, but did not seem to be eroded. A piece of thin rubber was placed in the incision to act as a drain and also to hold the mucoperichondrial flaps apart. The rubber drain was changed daily for the next two days and the abscess cavity irrigated with a solution containing 5,000 units of penicillin per cubic centimeter. On the third day, granulation tissue covered the inner surface of the mucoperichondrial flaps, and there was an absence of pus. The granulations were removed with a periosteal elevator, and the small amount of bleeding which occurred was controlled by applying bovine thrombin. An isograft of nasal septal cartilage measuring 2.0 by 2.5 cm. was placed between the mucoperichondrial flaps and held in place by a 4-0 chromic catgut suture that passed through the mucoperichondrial flaps and cartilage. Rubber drains, which were placed in each side of the nose to hold the flaps against the cartilage graft, were removed at the end of 24 hours. The swelling and tenderness over the dorsum of the nose rapidly disappeared, and by the eighth day following the cartilage implant the patient was again breathing through both nares. Following discharge from the hospital, she was seen at frequent intervals. Three months after the cartilage implant there was no deformity of the nose. The septum appeared to be of normal thickness and firmness.

Summary

The etiology, incidence, and treatment of septal abscess have been reviewed and the treatment of 3 cases presented. The first patient was seen before marked destruction of the septal cartilage had occurred. Incision and drainage, along with the use of antibiotics, resulted in healing without a nasal deformity. The second patient was seen after destruction of the septal cartilage, and following an accepted form of treatment, a saddle deformity developed. The third patient likewise was seen after destruction of the septal cartilage. However, in this case an isograft of septal cartilage was used and a saddle deformity did not develop. One might assume that the cartilage graft prevented a deformity of the nose. Even if one assumes that it was a mere coincidence that a deformity did not develop and that the cartilage graft played no important part, it is noteworthy that a graft was successful in what three days previously had been an infected area.

While conclusions cannot be drawn from one case, the use of cartilage graft in the treatment of septal abscess is presented as a possible means of preventing the development of a saddle deformity.

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Discussion

Dr. Larry Turner (Raleigh): There is no doubt that the treatment of septal abscess has been greatly advanced by the sulfonamides and antibiotics. I was wondering whether you would consider it sound surgical practice to introduce a graft in a recently infected cavity? Personally, I would prefer to wait for three or four months.

Dr. Al Davidson (New Bern): Why does the patient wait until the cartilage is completely destroyed before seeing a doctor?

Dr. Ralph Arnold (Durham): Nasal obstruction does not bring people to the doctor very often. Even when they have some pain in the vicinity of the nose they think it is due to a cold which will be better soon. All the cases we have ever seen have had a pre-existing hematoma—whether the result of trauma or surgery, I do not know. I have never seen any from any other cause.

Dr. Robert Bradish (Fayetteville): I concur with Dr. Arnold. That is the only kind I have seen.

I am inclined to agree with Dr. Mills that nothing is lost by attempting the early isograft of septal cartilage. It is only at that time that one still preserves the lines of cleavage with anything representing normality. He is to be congratulated on being daring enough to insert it at that time.

Dr. Carl N. Patterson (Durham): There is one thing I would like to point out. In some cases it might be possible to predict whether or not a saddle nose would develop. I am referring to the interrelationship of the upper and lateral cartilages. It is when the surgeon goes too high that a saddle nose may develop. If the upper lateral and lower lateral cartilage are closely applied, the septum, I believe, does not play a great role in support, as Fomon has pointed out; but where a weak triangle is formed—where the septum is felt just under your finger when you palpate it—a saddle deformity is most likely to result from a high septum operation or a septal abscess.

I would be hesitant to put an isograft in a potentially infected cavity.

Deaths from all forms of tuberculosis in 1949 are estimated to have numbered 39,000. The estimated death rate of 26.2 per 100,000 population is 9 per cent lower than the rate for 1948, after allowance is made for the changes in classification procedure. A further decrease of approximately 15 per cent appears to have occurred in 1950. Changes in mortality from both respiratory tuberculosis, which accounts for 93 per cent of the deaths, and nonrespiratory forms of the disease contribute to the decreases.—Evelyn H. Halpin and Otis D. Turner, *Pub. Health Reports*, May 4, 1951.

EXPERIENCES WITH THE PAPANICOLAOU SMEAR

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CHARLOTTE

In July, 1947, a cytology laboratory for the detection of carcinoma in the female genital tract by the use of the Papanicolaou smear was established at the Charlotte Memorial Hospital. The response was small at first, even though the smears were read free of charge and a jar of fixative was provided for the asking. In 1949 a charge of \$2.00 per patient was imposed. In spite of this, interest in the clinic continued to grow, and the number of smears submitted annually has increased each year since then (table 1).

Several years were required for the physicians of Charlotte and the laboratory personnel to acquire confidence in the use of the method. During those early years the laboratory often requested smears from patients known to have malignant lesions, to be used for teaching purposes. For this reason, the results obtained during the first three and one-half years were not deemed worthy of reporting.

Having now achieved through time and experience reasonable confidence in the use of the Papanicolaou smear for the detection of cancer of the cervix, we wish to present the results of our examination of smears made on 4,823 women between January 1, 1951, and March 31, 1952. These smears were not secured through a specific cancer detection clinic, but represent a random sampling of the female clientele of a large proportion of the practitioners of Charlotte.

Results

Of the 4,823 women included in this series, 75 had positive smears—an incidence of 1.55 per cent. Of these 75 positive smears, 56 were reported by this laboratory as grade IV (positive for malignant cells), and 19 as

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Read before the Section on Gynecology and Obstetrics, Medical Society of the State of North Carolina, Pinehurst, North Carolina, May 7, 1952.

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Table 1

Number of Cases in Which Vaginal Smears Were Examined by the Papanicolaou Technique at the Charlotte Memorial Hospital

1947 (July-December)	186
1948	1,327
1949	902
1950	1,340
1951	2,893
1952 (January-March)	1,930

grade III (suggestive, but not diagnostic, of malignancy). In 56 of the 75 patients with positive smears, biopsy showed either invasive or pre-invasive carcinoma. Thus the finding of a positive smear was proved to be of diagnostic significance in 74.7 per cent of the cases (table 2).

If the grade IV and grade III smears are analyzed separately, we find that 47 of the 56 grade IV smears (84 per cent) were confirmed by biopsy, while only 9 of the 19 grade III smears (47.4 per cent) have been confirmed.

Significance of Grade III Smears

It is debatable whether the grade III smears should be classified as positive and included in the statistical evaluation; however, experience has taught us that a grade III smear cannot be disregarded. Two brief case reports illustrate this point.

Case 1*

The patient was a 46 year old woman seen in 1950 for a routine examination and treatment of a trichomonal infection of the vagina. The cervix was completely normal to inspection and palpation. A routine vaginal smear was reported as grade III or suspicious, and a second smear made one week later was classified in the same manner. Two weeks later, however, a third smear was reported as negative. Contrary to our present practice, no further investigation was done. This patient was not seen again until March 18, 1952. At that time the cervix was still normal to clinical examination, but the vaginal smear was positive for malignant cells. The histopathologic examination revealed a stage I invasive carcinoma of the cervix.

Case 2†

The patient was a 30 year old woman seeking contraceptive advice. Examination showed a small circumoral erosion of the cervix. A routine smear made in February, 1952, was reported as grade III, or suspicious. A repeat smear one week later was reported as grade IV, or positive for malignant cells. Two further smears made at weekly intervals were reported as negative, and then a fifth smear as suspicious. Biopsy on April 12, 1952, disclosed intraepithelial carcinoma.

* Courtesy of Dr. Glenn Edgerton.

† Courtesy of Dr. Ledyard DeCamp.

Table 2

Results of Papanicolaou Smear Examinations
at the Charlotte Memorial Hospital
January, 1951-March, 1952

Total cases	4,823
Total cases with positive smears	
Grade IV — 56	
Grade III — 19	
	75
Positive smears confirmed by biopsy..	56 (74.7%)

Analysis of Unconfirmed Positive Smears

Analysis of the 19 unconfirmed positive smears (table 3) shows that 9 are apparently false positives, since thorough investigation has failed to disclose the presence of a malignant lesion. Four of these were grade IV smears and 5 were grade III smears. We have classified the other 10 smears in this group as unproven false positives. In 5 of these cases the investigation, in our opinion, was not sufficiently thorough to exclude the possibility of malignant disease; in 1, the pathologist reported only "atypicalities" in the biopsy specimen; and in 4 the clinician has not seen fit to make any further investigation. In these 4 cases the initial smears were all reported as grade III.

The incidence of false positive smears is thus either 0.186 per cent or .083 per cent depending on the interpretation. The incidence of false negative smears is entirely unknown at this time.

Clinical Classification of Cases with Positive Smears

Clinically, we divided the 75 cases with positive smears into four groups. In group A we included totally unsuspected cases—those with a negative history and physical examination. There were 15 cases in this group. In group B we placed unsuspected cases with a negative clinical history but with physical findings suggesting cervicitis. Thirty-six cases fell into this group. Group C was made up of 5 cases with a suggestive clinical history but no positive physical findings. In group D we included the 19 cases in which cancer had been suspected from the clinical history and which presented positive findings.

In classifying these cases we accepted the judgment of the clinician, realizing that there might be differences of opinion regarding the significance of the visual appearance of the cervix.

Table 3

Analysis of Positive Smears Unconfirmed by
Biopsy in 4,823 Cases

Proven false positive	
Grade IV	4 (.083%)
Grade III	5
	9 (0.186%)
Unconfirmed false positive	
Inadequate investigation	5
Pathologist undecided	1
Uninvestigated	4
	10
Total of unconfirmed positive smears....	19

The 51 cases in groups A and B are the ones which interest us most, for it is in the unsuspected case of cancer, where a biopsy would not usually be done, that the Papanicolaou smear technique renders its greatest service. This ability to ferret out early carcinomas in the most benign-appearing cervixes, we believe is sufficient justification for the vaginal smear. In this group of women, 36 out of 51 positive smears were confirmed by biopsy—a diagnostic accuracy of 70.6 per cent. Thirty of these cases were diagnosed as pre-invasive, and 6 as invasive carcinomas.

These 36 cases of carcinoma of the cervix would not have been found without the use of the vaginal smear. We estimate that, at \$2.00 per smear, \$9,646 (approximately \$268 per case) was spent in discovering these cases. This cost is certainly not excessive.

Comment

On the basis of our experience with the Papanicolaou smear, the following observations are offered:

1. To be most effective the vaginal smear must be used routinely and not in a hit-or-miss fashion. The theoretical ideal of examining a smear from every woman once every year from the onset of menstruation is impossible because of the lack of trained cytologists. We recommend therefore, that vaginal smears be made routinely on the following groups of women: (1) all women over 30 years of age; (2) all women with symptoms of gynecologic disorders such as discharge and irregular bleeding; (3) all women with a lesion of the cervix, no matter how insignificant.

Two smears, one from the vaginal canal, and one directly from the cervix, should be taken in each case.

2. When any patient has a Papanicolaou smear reported as grade III or grade IV,

thorough investigation is mandatory. We do not believe that punch biopsies, either single or multiple, are sufficient. In our opinion, biopsy is adequate only if the entire squamocolumnar junction of the cervix is removed and a separate curettage of the endocervix is done. It is vital that the surgeon label this tissue adequately for the pathologist, for only in this way can the latter make the all-important decision as to the presence or absence of invasion. The Papanicolaou smear alone is not sufficiently reliable to serve as the basis for treatment.

Summary and Conclusions

Since January, 1951, vaginal smears from 4,823 women have been examined at the Charlotte Memorial Hospital. Seventy-five patients were found to have positive smears (grade III and IV), and in 56 of these cases biopsy confirmed the presence of a malignant lesion.

In our opinion, the Papanicolaou smear is reasonably accurate, not too expensive, and definitely useful in the detection of early carcinoma of the cervix. It is not intended to supplant clinical examination of the cervix and cervical biopsy. Used correctly, however, it will disclose cases of early carcinoma of the cervix which would not otherwise be found, at a reasonable cost and with a minimum of discomfort to the patient.

The work of Miss Sarah Hodges, who screened the smears, is gratefully acknowledged.

Discussion

Dr. W. Kenneth Cuyler (Durham): Because of various factors which may be involved, demonstration of the reliability of the Papanicolaou smear occasionally fails. For example, it is good practice to make repeated smears to check interpretations of malignancy or questionable malignancy. The failure of repeated cytologic or pathologic studies to verify the original cytologic interpretation does not mean, necessarily, that the original report was in error. In many instances when repeated smears contain few or no suspicious cells over long periods of time, pathologic studies may ultimately confirm the original smear interpretation of malignancy. In some cases smears from patients with clinical cervical carcinoma, and even from patients with open, active, metastatic lesions in the vagina may not contain recognizable cancer cells.

It is difficult to account for the vagaries in the presence of cancer cells in smears. Their appearance is influenced by factors both extrinsic, such as douches, and intrinsic, such as the rate of desquamation and the area of the exfoliating surface. The fact that there may be wide variation in the number of tumor cells present should be remembered by clinicians, especially when smear studies are repeated in order to check former cytologic reports or the results of therapeutic measures.

It is gratifying to know that the authors employ the cervical smear. At the present time, there is a trend to rely on a vaginal smear for cancer detection. Many workers in numerous laboratories have found the single vaginal smear far inferior to the cervical smear for the identification of neoplastic changes.

The low incidence (0.4 per cent) of grade III smears in these 4,823 patients shows that this category has not been a waste basket for all smears containing atypical epithelial elements about which some doubt was entertained. It has been the custom, in a number of laboratories, to relegate every doubtful smear to grade III and let it go at that. Because of the low incidence of grade III smears and of false positive errors in this series, I feel that, in all probability, a number of the unconfirmed grade III interpretations reported in this paper will eventually be confirmed. It is not unusual to follow patients with grade III smears for months or even years before a final pathologic confirmation is made.

When the exfoliative cytologist renders a considered interpretation of atypical epithelium, it becomes the responsibility of the clinician and pathologist to confirm the presence of malignancy or rule out the probability of its existence. This may be a problem for each.

The clinician must obtain tissue from which a satisfactory diagnosis can be made. The punch biopsy method has missed 14 per cent of the 151 intra-epithelial carcinomas in our series. Conization specimens may miss lesions in portio vaginalis epithelium, or lesions arising deep in the glands; yet it is probably the method of choice for establishing the presence or absence of non-invasive or invasive carcinoma.

Inadequate pathologic studies may fail to disclose lesions present in any material obtained by any diagnostic procedure; yet lack of technical help may make it impossible for the pathologist to study each specimen adequately.

It is felt that a pathologist should not be censured for the diagnosis of atypicalities, since the criteria for the pathologic diagnosis of intra-epithelial carcinoma often are not clear-cut. Furthermore, cases are frequently seen in which only atypical epithelium does exist. On the other hand, the atypicalities recorded in one case of the present series may have been associated with non-invasive or invasive carcinoma which was not sampled by the diagnostic procedure.

When the clinician is not satisfied with the pathologic diagnosis in cases where a cytologic interpretation of malignancy has been made, he should, if it is at all feasible, secure additional tissue for study.

I realize that this paper deals primarily with false positive cytologic interpretations. Theoretically, the false negative error is an unknown entity. Yet the customarily accepted figure which is derived from the number of cases with negative smear findings in which malignancies were diagnosed by pathologic studies (those smears in which the lesion was missed) seems necessary to complete this review of the authors' experience with the Papanicolaou method. This error would have allowed not only additional evaluation of the procedure, but also an evaluation of the false positive error given.

I must take exception to the recommendation that cytologic studies be limited to patients aged 30 years or over. In our series of 151 intra-epithelial carcinomas, 22, or 21.1 per cent of the total, occurred in women from 20 through 29 years of age; 12 lesions, or 7.9 per cent, occurred in girls less than 25 years of age. In our series of 566 squamous-cell cervical cancers diagnosed over a five year period 28, or 4.9 per cent, occurred in women from 20

through 29 years of age; and 4 lesions, or 0.7 per cent, occurred in women less than 25 years of age. We believe that each obstetric and gynecologic patient should have the benefit of cytologic studies when she comes in for examination.

Dr. Glenn Edgerton (Charlotte): I would like to say something about these grade III smears. I am of the opinion that, since our cytologic laboratories have become more accurate in these diagnoses, a patient who has two consecutive smears suggestive of malignancy should be hospitalized for an extensive biopsy. Valuable time can be lost in making subsequent smears after two grade III smears have been obtained.

I would also like to comment on cervical biopsies. I never have been satisfied with the cervical biopsy specimens which I have removed. I have tried practically all methods; but, especially in these patients who have positive or suggestive smears, I believe that conization, extending all the way down to the internal os, is the most suitable method of obtaining material for biopsy.

Dr. Jesse Caldwell (Gastonia): According to Dr. Huey's figures, 36 of the 75 patients with positive smears had a visible cervical lesion; 5 patients had symptoms suggestive of malignancy; and in 18 cases the diagnosis was fairly obvious from the history and physical findings. Thus, in 59 out of 75 cases there was some reason to pursue the investigation further. I believe that in such cases it is preferable to perform a biopsy and curettement in the beginning.

In only 15 cases, then, was totally unsuspected malignancy disclosed by the cytologic smear, and the cost of diagnosing these cases would be raised to approximately \$643 per case.

Dr. W. L. Thomas (Durham): Apparently, it is cheaper to diagnose early cancer of the cervix in Charlotte than it is in Boston. As I understand it, Dr. Huey, your group has spent around 200-odd dollars. Dr. Meigs, in Cincinnati, reported that it cost him \$900 or more to make an early diagnosis of cancer of the cervix. Seeing, as I do, about 150 new patients with cancer of the cervix each year, I feel that we would give almost any amount of money to cure them. Therefore, I think the monetary aspects of this matter should be disregarded.

Functional Disease: Restaurant and tavern owners are frequently seen by the physician because of functional disease; more specifically, owners of small restaurants and taverns. In a relatively small establishment the proprietor tends to spend most of his waking hours at his place of business. There are laws to protect the employees, but the owner-manager works on. Meals are irregular and hurriedly eaten; there is a tendency to smoke and drink too much. It is not hard to understand why dyspepsia is the symptom most commonly complained of. When the family living quarters are directly adjacent to, or above the place of business, the ratio of nervous disorder increases. Owners of small grocery stores and filling stations work under similar conditions and are similarly afflicted.—Lovshin, L., L.: Benign Nervousness, Ohio State M.J. 26: 272 (Oct.) 1950.

EARLY NORTH CAROLINA MEDICINE

Physicians of the Colonial Period

Part II

DOROTHY LONG

LEXINGTON, KENTUCKY

Another politically active physician, Dr. Abraham Blackall, was one of the witnesses in the complaints of the colonists against Governor Gabriel Johnston in 1749. On April 19, there was filed "The Deposition of Abraham Blackall of Edenton in North Carolina, Practitioner in Physic and Chirurgery being forty three years of age."⁽¹⁾ He stated in this deposition that he had come to North Carolina in the year 1730 and that in 1734 he had received a commission as clerk of the House of Burgesses.

The journals of the sessions of the assembly, also printed in the Colonial Records, show that Dr. Blackall was on the committee for public claims of the lower house of the assembly in 1740, and that he introduced several bills, some of which reflect his professional interests. Among them were: "A Bill appointing Coroners in every County of this government and declaring the duty of said officers," and "A Bill for registering of Christnings, Marriages & Burials, and prohibiting private burial." Both of these bills seem to have been passed by the assembly, but on February 12, 1740, Dr. Blackall "moved for leave to bring in a Bill for an act to prevent the abuse of practisers of Physick and Chirurgery, and to Ascertain their fees,"⁽²⁾ and this apparently did not become a law. In addition to being a member of the general assembly of the colony, Dr. Blackall was also one of the commissioners of Edenton and of its town lands.

The list of officers and men of the New Hanover troops commanded by Captain William Mackenzie in 1748 includes Samuel Greene, Surgeon. Spanish cruisers at that time made several raids on the Carolina coast, one of them at Brunswick on September 4, 1748. In this battle a Spanish ship was blown up, and some wounded or badly burned Spanish soldiers were turned over to Dr. Greene for treatment. As he presented a

*Assistant reference librarian, University of Kentucky, Lexington, Kentucky.

claim against the government for their care, some details of the treatment were given. His bill, presented September 23, 1748, is for medicines, dressing, and diet of the Spanish prisoners. Some quotations from it follow:

"To medicines and dressing of Joseph Sallad . . . whose face, ears, neck, breast, belly and both legs, quite round and deep from knee to ankle, very much burned, as also both hands very deep, taking at least one hour every day to dress him, whose cure I believe will be completed about the last of September . . ."

"To one Senitive Mixture, being exceeding costlie."

"To medicines and dressing of Francisco De Strades, of a Gun Shot wound, the Ball entering on the fore part of the right shoulder, going under the blade and lodging near the Right Kidney . . . whose cure I believe will be perfected about the 2d of October."

"To Francisco Gonsallis, being sick."

"To a large pectoral Electuary, 12 doses."

"To two suppurating Cataplasms."

"To Emolient Ointment."

The bill for the care of these and three other men included food and nursing care as well as medical attention, and the total charges were 143 pounds, 10 shillings.⁽³⁾ The word *senitive* is perhaps a misspelling of *sensitive*, and the "suppurating Cataplasms" may indicate that Dr. Greene believed the once widely prevalent theory that "laudable pus" was necessary to the healing of wounds.

By the latter half of the eighteenth century Wilmington had become a town of sufficient size to need a number of doctors, and Janet Schaw, in *The Journal of a Lady of Quality*,⁽⁴⁾ writing of her visit there in 1774, says that there were very good physicians. She mentions Dr. Thomas Cobham most often, but two others of whom we have some accounts are Dr. John Eustace and Dr. John Fergus. McRee, in the *Life and Correspondence of James Iredell*, describing the society of Wilmington in the 1760's, mentions "Dr. John Eustace, the correspondent of Sterne, who united wit, and genius, and learning, and science," and "Dr. John Fergus, of stately presence, with velvet coat, cocked hat, and gold-headed cane, a graduate of Edinburgh, and an excellent Latin and Greek scholar."⁽⁵⁾

Dr. Eustace is said to have had a library, largely medical, but also containing works of general literature, obviously including those of Laurence Sterne, to whom he sent "a curiously carved walking stick, double-headed and twisted into all sorts of shapes,"⁽⁶⁾ accompanied by a letter, a copy of which, with Sterne's reply, was found among the papers

of Judge Iredell and reproduced by McRee. The date of Dr. Eustace's letter is not given, but Sterne's very grateful answer is dated February 9, 1768. After introducing himself as a great admirer of *Tristram Shandy*, the colonial physician explained the occasion for his odd gift. "The only reason that gave rise to this address to you is my having accidentally met with a piece of Shandean statuary—I mean according to the vulgar opinion; for to such judges, both appear equally destitute of regularity or design. It was made by a very ingenious gentleman of this province, and presented to the late Governor Dobbs; after his death Mrs. Dobbs gave it to me. Its singularity made many very desirous of possessing it, but I had resolved, at first, not to part with it, till, upon reflection, I thought it would be a very proper and probably not an unacceptable compliment to my favorite author, and in his hands might prove as ample a field for meditation as a buttonhole or broomstick."⁽⁷⁾

As Dr. Eustace appears to have taken little part in politics, few references to him are found in the Colonial or State Records, but that he was held in high esteem as a physician is suggested by a statement in one of the letters to George Hooper from Archibald MacLaine, much of whose correspondence has been preserved. Writing on February 16, 1782, from Wilmington, MacLaine says of a certain Dr. Ingram, "I am sure he is infinitely preferable to any we have here, or any we have had since Eustace's death."⁽⁷⁾

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

OCTOBER, 1952

POSTGRADUATE EDUCATION IN NORTH CAROLINA

On page 584 of this issue is an important
news note from the University of North
Carolina, stating that a combined staff con-
ference will be held every Wednesday after-
noon at 4 o'clock. All physicians are invited
to attend this conference and to participate
in the informal question-and-answer part of
the program.

Duke and the Bowman Gray Schools of
Medicine have for years offered similar post-
graduate opportunities to interested physi-
cians. At Duke a clinicopathological con-
ference is given every Saturday morning at
11. Bowman Gray's CPC is held on Monday
night at 8 o'clock and is preceded by a half-
hour's presentation of interesting cases.

These regular weekly conferences offered
by our three medical schools, together with
the district meetings and the many other an-
nual programs arranged in various parts of
the state, afford the doctors of North Caro-
lina a wonderful opportunity for continuing
postgraduate education.

* * *

NORTH CAROLINA MEMORIAL HOSPITAL OPENS

On September 2 the North Carolina Mem-
orial Hospital—the teaching hospital of the
University of North Carolina four-year
medical school—opened its doors for the ad-
mission of patients. This marks a significant
chapter in the history of medical care and
medical education in North Carolina. The
first class of third year medical students en-
tered the University this fall, and more than
40 house officers — interns and residents —
have been waiting since July 1 for the open-
ing of the hospital. During the interval these
young doctors have been serving at Duke, the
North Carolina Baptist Hospital, and other
hospitals on a sort of lend-lease arrangement.

The hospital staff is as follows:

ADMINISTRATION

Dr. Robert R. Cadmus, Director

Mr. E. B. Crawford, Jr., Assistant Administrator

Mr. Joseph P. Greer, Assistant Administrator

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Dr. Thomas T. Farmer, Professor of Neurology in
Medicine

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ism)

Dr. John T. Sessions, Jr., Assistant Professor
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Dr. Ernest Craige, Assistant Professor (Cardi-
ology)

Dr. Jeffress G. Palmer, Assistant Professor (Hem-
atology)

Dr. Oscar A. Thorup, Jr., Fellow (Metabolism)

Dr. Janet J. Fischer, Fellow (Virology)

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Head of Department

Dr. Paul L. Bunce, Assistant Professor of Surgery
(Urology)

Dr. Newton D. Fischer, Assistant Professor of
Surgery (Otolaryngology)

Dr. Richard M. Peters, Assistant Professor of
Thoracic Surgery.

Dr. Richard B. Raney, Professor of Orthopedic
Surgery

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Dr. June U. Gunter, Instructor in Pathology

Dr. William J. Cromartie, Associate Professor of Bacteriology and Director of Bacteriological Laboratory

Dr. Robert H. Wagner, Research Associate in Pathology and Biochemistry

DEPARTMENT OF ANESTHESIOLOGY

Dr. David A. Davis, Professor of Anesthesiology and Head of Department

Additional appointments are being made to complete the full clinical staff. Appointments in neurosurgery and ophthalmology are currently pending.

On behalf of the doctors of North Carolina the *North Carolina Medical Journal* extends congratulations and best wishes to our

state University as its medical school expands into a four-year institution, and to its indispensable teaching unit, the North Carolina Memorial Hospital.

* * *

BRITISH COMMENTS ON AMERICAN MEDICAL EDUCATION

The *British Medical Journal* for August 30 is an educational number. Three of the 11 articles deal with graduate education in America. It is an interesting experience to see ourselves as others see us; or, at least, as our British cousins see us.

Dr. W. Melville Arnott, who wrote the first, spent most of his time in Boston, at Harvard and its teaching hospitals, especially the Massachusetts General Hospital. Dr. Arnott was greatly impressed by the hospitality shown him, as well as by the "free association between staff of all grades of seniority and students both graduate and postgraduate and the easy terms of personal friendship which exerted a profound influence on the outlook of all. . . . In such an environment it is possible to mature quickly and yet to become senior in rank and old in years without becoming dogmatic, pompous, and unreceptive to new ideas."

The intriguing observation was made by Dr. Arnott that such schools as Harvard really need not worry about financial support, for "financial and material support is a secondary acquisition which follows naturally . . . support tends to go to the school which knows how to make use of it."

Dr. Arnott further comments that limiting the numbers of students to relatively small classes is of great value in a teaching program, since "The free interchange of ideas, the exhaustive debate, and the intimate contact is impossible with large classes." Other features which came in for commendation were the clinicopathological conferences, the "grand rounds," and the intense enthusiasm of teachers, house officers, and students.

In his final paragraph, Dr. Arnott pays tribute to American education generally: "Although I have confined myself largely to experiences in Boston, I found in my briefer

visits to many other clinical centres, such as Rochester, N. Y., the Trudeau Foundation, the Mayo Clinic, Minneapolis, New Orleans, Birmingham, Ala., Duke University at Durham, N. C., Johns Hopkins Hospital, University of Pennsylvania Hospital, and the Presbyterian and the Bellevue Hospitals in New York, the same invigorating intellectual climate and excellence of clinical practice."

Another traveling fellow, Dr. C. F. Hawkins, spent most of his time in America at the graduate Hospital of the University of Pennsylvania. He, too, was complimentary, but more critical than was Dr. Arnott. "In Britain the clinical approach and good bedside teaching are characteristic, whereas in America the laboratory aspect is highly developed." Immediately, however, he qualified this generalization by saying that it does injustice to many outstanding American physicians "whose clinical acumen is above reproach," as well as to the numerous centres in Britain "where there is a perfect blend of the clinical and scientific approach."

Dr. Hawkins was quite impressed by the audiovisual aids used in medical teaching in the United States, and with the emphasis placed upon the need for keeping up with medical advances.

In the editorial section of the same Journal, an "Annotation," discussing "Study Abroad," gives the advantages of visiting medical centers in other countries: "Nor is there anything quite like contact with the foreign doctor for blowing away a few medical myths, for encouraging a critical outlook through comparing 'ours' with 'theirs,' for becoming a little wiser and more understanding. The number of traveling scholarships and fellowships awarded annually is increasing." Then follows quite a compliment to American medical education: "Many, but not all, of these aids to foreign travel and study take the holder to the United States, and these are naturally the ones most sought after. Two very readable articles in this issue . . . show why British doctors usually find a visit to the United States so stimulating and educative."

This, from the *British Medical Journal*, is indeed praise from Sir Hubert.

* * *

HOW TRUTHFUL IS TRUMAN?

On September 25 an Associated Press dispatch said:

"President Truman said today he thought his Philadelphia speech on medical care for the American people, rather than an American Medical Association victory, caused the A. M. A. to disband its group to set up to fight his national health program.

"The President commented after he was told at a news conference that the A. M. A. was disbanding its special committee opposed to the Truman health plan on the ground that it was no longer necessary.

"Truman said he thought what finished the battle was a certain speech the President made at Philadelphia. He asserted the A. M. A. officials admit now by their action that they have been wrong."

Immediately Dr. Louis Bauer, president of the A.M.A., replied:

"The American Medical Association will never cease its fight against national compulsory health insurance. Mr. Truman's Philadelphia speech had no bearing whatsoever on the decision to disband a special committee set up to conduct an intensive short-term, educational program against socialized medicine. This decision was reached by the A. M. A. House of Delegates last June, and was widely publicized at the time.

"The National Education Campaign was merely one intensive phase in the medical profession's long-range effort to keep medical care on a voluntary basis. This effort will continue as long as attempts are made to shackle people's health in bureaucratic red tape.

"Mr. Truman is naive indeed if he believes that any speech he delivers could change the medical profession's basic beliefs concerning high quality medical care."

On October 7 Mr. Raymond Moley commented on another speech by our President.

"President Truman in his speech at the dedication of the Hungry Horse Dam in Montana was at his most unscrupulous worst . . . he provided an example of recklessness which I hope will never be repeated by any President . . .

"The solid fact emerges that the President of the United States, standing upon the eminence offered him by his high office, is crossing the country scattering on all sides not only the cheapest sort of demagogic comments, but actual violations of the simple truth."

Since President Truman has been quick to accuse his opponents of telling lies and even "damned lies," John Q. Citizen may be pardoned for asking the question, "How truthful is Truman?"

PUBLIC RELATIONS

"The prime object of the medical profession is to render service to humanity..." so reads the first sentence of the Principles of Medical Ethics. In keeping with these principles, the objective of any echelon of the medical profession should have as its aim: to improve physician-patient relationships by encouraging the individual physician to administer his services promptly, efficiently, and courteously, with understanding of the patient as an individual. Most Tar Heel physicians are aware of their need to carry on good personal public relations with their patients.

The physician also has a responsibility as a citizen. By the very nature of his background he is an objective student of the human body in health and disease. The same kind of objective approach could logically fit into a diagnosis and treatment of the ills of a community. But there are instances where physicians in the past have denied themselves the privileges and opportunities for civic service. Ever increasing community service will convince people that the physician is vitally concerned with the public good and that his thoughts on controversial subjects are important to all.

Much has been said in the past year or so about the need for an objective public relations program by each of the county societies of the medical profession in North Carolina. Several county medical societies recently have adopted measures leading to a better understanding between the public and the doctors. However, others must realize that an intelligent and energetic program of public relations will do much to strengthen the confidence of the public in the profession. Such a program automatically generates increased prestige—a matter of primary importance to the progress of the local societies.

The medical service program of the State Society's Committee on Public Relations includes among other things the following six major objectives:

1. Encouraging the selection of a family doctor for every person in every county before an emergency arises.
2. The establishment of Emergency Call or Answering System in communities of adequate size.

3. Medical-Press-Radio-Civic Leader conference or luncheons, to foster a better mutual understanding of the other fellows problems.

4. Establishment of Medical-Press-Radio Code of Ethics or Code of Cooperation, worked out on a county basis or community area.

5. Establishment of County Medical Society Speakers Bureaus and the organization of plans for the utilization of such bureaus; keeping in mind that the public may not understand the outstanding scientific or medical paper, but still expect an interesting presentation from a physician.

6. Promotion of the sale of Voluntary Health Insurance. Local encouragement of the sale of the "Doctors' Plan" as a sincere effort on the part of North Carolina's physicians to offer protection to the lower income families against catastrophic illness.

The idealistic attitude of doing a good job and letting the credit take care of itself becomes passé when adopted by an organization operating in the high pressure atmosphere of today. Not only is it desirable that the group attract to itself as much favorable attention as possible; it is further advisable for it to dramatize its service and accomplishments in such a way that they will have maximum personal meaning to as many individuals outside the profession as possible. The organization which lets its light so shine before men that they may see its good works will be glorified.

The job of influencing public opinion, meanwhile, is not one that can be done overnight. A good strong editorial in next week's paper won't do it, nor will a series of radio programs — not any more than one rock thrown into a lake will raise the water level significantly. Yet, in the words of Congressman Walter H. Judd, M.D., of Minnesota,

"The thing that's moving wins. The drop of water wears away a stone, but the thrown stone breaks the surface of the water."

Abraham Lincoln summed it up in the statement: "Public sentiment is everything. With public sentiment nothing can fail; without it nothing can succeed; consequently he who molds public sentiment goes deeper than he who enacts statutes."

Public opinion, except in dramatic cases of common disaster or international outrage, is inclined to change slowly. It can be done

without great subtlety, but not without continuity and persistence.

All public relations are not based on publicity, but good publicity is a part of good public relations. More and more county medical societies are finding that press conferences or luncheons can be helpful as a means of stimulating understanding and cooperation with the fourth estate.

At a recent meeting of the A.M.A. Public Relations Advisory Committee the subject of how to handle unfavorable articles, especially newspaper stories, was discussed at some length. Director of Press Relations, John L. Bach, says the subject primarily concerned stories dealing with the medical profession or medical policies; not medical science stories.

Mr. Bach states: "The consensus of the committee was that letters to the editor were usually valueless. A friendly personal call on the editor immediately after such an article appears, acquainting him with the true facts, was felt to be the most effective. It is very obvious that an editor will appreciate the medical society's cooperation and will be perfectly willing to print the facts in follow-up stories. Such a meeting, too, might provide a springboard for editorial comment," he concluded.

In the words of John Knox, "You cannot antagonize and influence at the same time."

WILLIARD N. HUBBARD
Executive Assistant
for Public Relations

Lilly Isolates New Antibiotic

A promising new orally administered antibiotic, effective against a wide variety of organisms and remarkably free of toxic effects, is reported in the June issue of the journal, *Antibiotics and Chemotherapy*. The name 'Ilotycin' (Erythromycin, Lilly) has been given the new agent which is a discovery of the Lilly Research Laboratories. 'Ilotycin,' which climaxes a five-year program of intensive research in this field, is obtained by culture of an actinomycete isolated from a sample of soil collected in the Philippine Islands.

Preliminary clinical trial has been carried on in more than 100 patients without appearance of gastrointestinal disturbances seen with some other antibiotics and without evidence of toxic effects or sensitization reactions.

The new antibiotic does not destroy the colon bacillus in the intestinal tract and thereby the normal flora of the bowel remains unaffected.

Although clinical trials look encouraging, several months will elapse before 'Ilotycin' is thoroughly investigated and considered ready for general distribution.

BULLETIN BOARD

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Infant mortality in six major premature centers in North Carolina has been cut one-half as a result of the course in nursing care in cooperation with the Duke University School of Nursing, Dr Robert J. Murphy, pediatric consultant, State Board of Health, said recently. The course at Duke began last fall, sponsored by the North Carolina Pediatric Society and administered by the State Board of Health.

Although there were 8,953 premature infants born, representing 8.1 per cent of total births, in North Carolina during 1951, infant mortality was cut in half at Duke and Watts Hospitals, Durham; North Carolina Baptist Hospital, Winston-Salem; Parkview Hospital, Rocky Mount; James Walker Hospital, Wilmington; and Victoria Hospital, Asheville, Dr. Murphy reports.

* * *

The Sixty-fifth General Hospital Unit will celebrate its tenth anniversary of call to active duty with a reunion at Duke University, October 31-November 1, according to an announcement by Dr. Ivan Brown, acting general secretary. This will be the second reunion since the Duke unit was assigned to active duty in July, 1942. Most of the 170 present and former officers and nurses of the unit are expected to attend the two-day program.

Since the war the Sixty-fifth has been established as a permanent Reserve Army Hospital unit.

The Sixty-fifth originated during World War I, as the Sixty-fifth Base Hospital, comprised of North Carolinians serving under the late Dr. Frederic M. Hanes, professor of medicine at Duke Medical School.

Highlight of the program will be an address by Brigadier-General Rawley Chambers, chief of professional services, Surgeon General's Office, on ent Day Handling and Care of Casualties in the Korean War."

* * *

The American Academy for Cerebral Palsy, a top national group of medical specialists, held its annual meeting at the Duke University School of Medicine and the North Carolina Cerebral Palsy Hospital, October 2-4. The first day of the meeting was devoted to clinical demonstrations by the staff of the North Carolina Cerebral Palsy Hospital and the second day to scientific papers by members.

Academy membership consists of specialists from over the United States in orthopedics, pediatrics, physical medicine, neurology, psychiatry, ophthalmology, psychology and speech pathology. Only men who have contributed to the medical literature on the subject or who have done research in the field are selected.

* * *

A new 16-ounce tube-mask and half an ounce of a special brand of a common commercial liquid are revolutionizing medical care in minor medical treatment and dentistry at Duke University. The new mask is a Duke inhaler, a simply designed rubber

mask attached to a small cylinder which is held easily in the hand and administered by the patient himself when he feels pain.

The inhaler, designed by Dr. C. R. Stephen, associate professor of anesthesiology at Duke Hospital and Duke Medical School, and George Newton of the Duke Medical Research laboratory, can be used in the doctor's office, in the operating, delivery or emergency rooms, first aid stations, at home, or en route to the hospital.

The clear, blue liquid is "Trilene," a brand of highly purified trichlorethylene, which is used commercially in dry cleaning processes—and was developed as an anesthetic by the British during the war.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

The staff of the University of North Carolina School of Medicine will hold a combined staff conference every Wednesday afternoon at 4:00 o'clock in the auditorium on the fourth floor of the Clinic Building. Members of the basic science and clinical departments of the School of Medicine, after discussing patients presenting interesting or difficult problems in diagnosis and management, will join with the audience in asking and answering questions relevant to the patient being discussed. A cordial invitation is extended to all physicians to attend this conference. Since the informal question-and-answer part of this program will be emphasized, it is hoped that physicians from all over the state who are in the vicinity of Chapel Hill any Wednesday afternoon will attend and participate in this conference.

* * *

Dr. Ernest H. Wood, professor of radiology, presented a paper on "Some Factors which Affect the Value of Carotid Angiography in the Diagnosis of Brain Tumor" at the annual meeting of the Neurosurgical Society of America in September; he also took part in a panel discussion on "Diagnosis and Treatment of Vascular Anomalies of the Brain."

* * *

Dr. Ernest Craige, of the Department of Medicine, has received a grant of \$13,780 from the National Heart Institute for an expanded teaching program in cardiovascular diseases. Dr. Craige met with the Rowan County Heart Association on September 25 and discussed "Progress in Heart Disease Research."

* * *

Dr. Thomas W. Farmer, professor of medicine in neurology, has been awarded a grant of \$10,692 by the U.S. Public Health Service for continuation of studies of the use of radioactive iodine preparations in chronic infections.

* * *

Members of the staff were invited to the September meeting of the Ninth District Medical Society at Morganton. Dr. W. R. Berryhill gave the introductory remarks regarding the Medical School and Hospital; other staff participants were: Dr. Ernest Craige, assistant professor of medicine, on "Rheumatic Heart Disease"; Dr. Edward C. Curnen, Jr., professor of pediatrics, on "Rheumatic Fever and Rheumatic Heart Disease in Childhood"; Dr. Robert A. Ross, professor of obstetrics and gynecology, on "Hypertensive Cardiovascular Disease in Pregnancy"; Dr. Nathan A. Womack, professor of surgery, on "Common Pre- and Post-Operative Problems"; and Dr. George C. Ham, professor of psychiatry, on "Minor Neuroses."

* * *

Dr. Edward C. Curnen, Jr., professor of pediatrics, presented a paper on "Recent Advances in Poliomyelitis" at the State Hospital at Butner on October 8 and one on "Recent Advances in Pediatrics" before the Academy of Medicine of Rocky Mount on October 16. During September he took part in meetings of the North Carolina Pediatrics Society and the Guilford County Pediatric Society.

* * *

Dr. Jeffress G. Palmer, of the Department of Medicine, spoke to the Cabarrus County Medical Society on "The Diagnosis and Management of Anemia" at its September meeting.

* * *

Dr. Edward C. Frank, associate professor of psychiatry, attended the Southeastern States Research Conference of the American Psychiatric Association held at Emory University on September 25 and 26.

* * *

Dr. George C. Ham, chairman of the Department of Psychiatry, delivered the annual Whitehead Lecture to the faculty and student body of the Medical School on September 23 as a part of the orientation program for new students. His topic was "Changing Concepts of Integrated Medicine."

NORTH CAROLINA ACADEMY OF GENERAL PRACTICE

The North Carolina Academy of General Practice held its fourth annual Scientific Assembly in conjunction with the Bowman Gray School of Medicine of Wake Forest College, in Winston-Salem, October 19, 20, 21, with headquarters at the Robert E. Lee Hotel.

The program at the Hotel featured such outstanding speakers and clinicians as Dr. Robert Greenblatt, Department of Endocrinology, Medical College of Georgia; Dr. Frank Borzell, assistant professor of Roentgenology, University of Pennsylvania Post-graduate School and past speaker of the House of Delegates of the American Medical Association; Dr. Harry Warthern, professor of clinical surgery, Medical College of Virginia; and Dr. Louis Krause, professor of clinical medicine, University of Maryland Medical School. Many of the outstanding clinicians and professors of the Bowman Gray School of Medicine were featured at the lectures in their amphitheater. Clinical presentations and two clinicopathologic conferences were conducted there. The President's Banquet was held Tuesday evening.

Entertainment for the ladies included a buffet dinner and dance, a tour of Old Salem, and a fashion show.

DURHAM-ORANGE COUNTY HEART ASSOCIATION

Dr. Paul Dudley White of Boston will be the speaker at the annual meeting of the Durham-County Heart Association on Friday, October 31.

Dr. White will speak informally to Duke doctors at a luncheon held at Duke Hospital. At 3:30 p. m. the amphitheater of the new North Carolina Memorial Hospital will be inaugurated with a panel discussion on coronary atherosclerosis, which will be open to all doctors. Participants in addition to Dr. White will be Dr. Paul Camp, Richmond, Virginia, Dr. Edward Orgain of Duke University School of Medicine, and Dr. Bruce Taylor and Dr. Ernest

Craige of the University of North Carolina School of Medicine. At 6 p.m. a small, informal supper will be given for Dr. White at the Carolina Inn.

The annual meeting of the association will be held at Carr Junior High School, Morgan and Duke Streets, Durham, at 8 p.m. Following a short business meeting, Dr. White will deliver a talk on "Three Medical Eras." This session will be open to the public.

On Saturday, November 1, Dr. White will address medical students of the University of North Carolina.

NORTH CAROLINA SURGICAL ASSOCIATION

The North Carolina Surgical Association met at Roaring Gap on September 13, at which time the following scientific program was presented: "Chronic Recurrent Pancreatitis" by Dr. Joe Van Hoy of Charlotte; "Subdural Abscess Caused by Frontal Sinusitis" by Dr. William Pitts of Charlotte; and a round table discussion on "Malignant Melanoma" led by Drs. H. B. Kernodle of Burlington, Jane Wilson of Durham, and Max Schiebel of Durham.

Officers elected for the coming year were Dr. L. Gordon Sinclair of Raleigh, president; Dr. F. M. Simmons Patterson of New Bern, vice president; and Dr. Alexander Webb, Jr., of Raleigh, secretary-treasurer.

CARTERET COUNTY MEDICAL SOCIETY

The Carteret County Medical Society met Monday evening, September 8, at the Morehead City Hospital. This was a dinner meeting, the hospital acting as host.

The Public Relations Committee of the Society made a report with certain recommendations. Among the recommendations were:

1. That it be suggested to the new families coming to the county that they select a family doctor and make his acquaintance before illness strikes. This would mean that the family would not be in the position of having to call a strange doctor to the bedside. Several of the physicians present stated that in their experience it was not uncommon for newcomers to do this.

2. That through the hospital 24 hour medical service be available to all patients whether the family physician could be reached or not. (It is understood that this arrangement is now in effect.)

3. That health radio transcripts be sponsored by the Medical Society.

4. That all physicians keep their office waiting room supplied with authentic bulletins on timely health and medical topics which would be free to all patients.

5. That the Society provide a committee known as the Grievance Committee, which would hear complaints on the part of any citizen in connection with hospital or doctor fees, or any other medical matter. These complaints should first come to the attention of the president of the society, and he would refer them to the Grievance Committee for investigation.

The Society approved all of the recommendations of the Public Relations Committee. This committee is composed of Dr. N. Thomas Ennett, chairman, and Drs. F. E. Hyde and John W. Morris.

No scientific paper was presented at this meeting. Dr. M. B. Morey, president, presided.

N. THOMAS ENNETT, M.D.
Corresponding Secretary

FORSYTH COUNTY MEDICAL SOCIETY

The Forsyth County Medical Society held a dinner meeting in Winston-Salem on September 9. Speaker of the evening was Dr. W. W. Zuelzer, pathologist and hematologist of Children's Hospital of Michigan and Wayne University College of Medicine, Detroit, whose subject was "Management of Anemias in Childhood."

EDGECOMBE-NASH MEDICAL SOCIETY

Dr. K. D. Weeks and Dr. John Chambliss were speakers at the monthly meeting of the Edgcombe-Nash Medical Society held in Rocky Mount on September 10. Dr. J. B. Christian of Spring Hope was welcomed as a new member.

NEWS NOTES

Dr. Walter R. Graham of Charlotte was certified by the American Board of Ophthalmology, following the examinations held in Philadelphia in June.

* * *

Dr. Lockert B. Mason has announced the opening of his offices for the practice of general and thoracic surgery in Wilmington.

AMERICAN MEDICAL ASSOCIATION

Dr. Louis H. Bauer of Hempstead, New York, president of the American Medical Association, announced today that Dr. Elmer L. Henderson of Louisville, Ky., Chairman of the A. M. A. Coordinating Committee, and Clem Whitaker and Leone Baxter, directors of the A. M. A. National Education Campaign, have resigned their A. M. A. assignments to participate in the presidential campaign.

Dr. Bauer's statement follows:

"Dr. Elmer L. Henderson of Louisville, Kentucky, chairman of the Association's Coordinating Committee, which has supervised the campaign against socialized medicine, has resigned his committee chairmanship so that he may be free to participate in the presidential election campaign.

"Clem Whitaker and Leone Baxter, Directors of the A. M. A. National Education Campaign, have asked to be released from their public relations assignment for the same reason.

"These resignations mark the official termination of the A. M. A. National Education Campaign, which for the past four years has been eminently successful in arousing the American people to the dangers of socialized medicine, and which has played a vital part in accelerating the growth and development of voluntary health insurance. The American Medical Association, on this occasion, wishes to thank the American people for their heartening demonstration of confidence and support.

"The A. M. A., as a nonpartisan, professional organization, is barred, both ethically and legally, from participating in election campaigns, which explains the action of Dr. Henderson and Mr. Whitaker and Miss Baxter in asking for their release from A. M. A. duties. The association will take no part in the presidential election, except to join with other nonpartisan groups in urging all eligible voters to cast their ballots on election day, regardless of their affiliations or preferences. Individual doctors, of course, are entirely free to engage in election activities and, in fact, have a very real responsibility to make their influence felt for good government."

* * *

The sixth annual Clinical Session of the American Medical Association—meeting December 2-5 in Denver—will feature practical demonstrations on various phases of medicine of special educational value



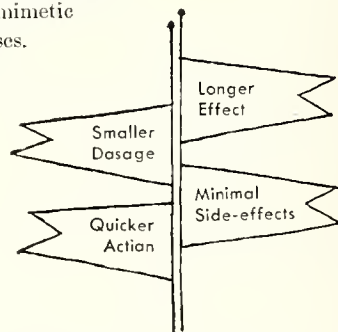
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to the general practitioner. More than 60 scientific exhibits will provide the GP with a postgraduate course in such subjects as office anesthesia, cardiology, dermatology, endocrinology, gynecology, laboratory procedures, otolaryngology, pediatrics and proctology. Emphasis will be on diagnosis and treatment.

In addition to scientific papers presented by leading physicians from all over the United States, highlights of the meeting will include a large technical exhibit, and surgical and clinical demonstrations on color television and motion pictures. All technical and scientific exhibits and scientific sessions will be held at Denver's recently-enlarged Municipal Auditorium.

* * *

A program to interest general practitioners in industrial medicine recently was launched by the joint committee on education of the American Academy of General Practice and the Council on Industrial Health of the American Medical Association. The project proposes to encourage an understanding of industrial health problems by management and physicians and to develop an education program geared to the GP on both the undergraduate and postgraduate level.

* * *

The Committee on Pesticides of the American Medical Association currently is undertaking a country-wide toxicologic study of cases of poisoning resulting from the use of insecticides, rodenticides, fungicides, weed killers, fumigants, repellents and related types of chemicals used in agriculture and the home. This information will be used to expand its permanent file of such cases for use by physicians and allied medical personnel.

Since much of the committee's information on pesticide poisoning has been compiled from unpublished isolated cases which were brought to its attention, the committee appeals to physicians to submit records on cases of non-fatal and fatal poisonings from pesticides. The committee points out that summary data on the pertinent facts of the poisonings and the circumstances of their occurrence would be sufficient in most instances. The committee is functioning as a center for reporting this type of poisoning cases.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The fifth annual postgraduate course on the Recent Advances in Diseases of the Chest, sponsored by the Council on Postgraduate Medical Education and the New York State Chapter of the American College of Chest Physicians, will be presented at the Hotel New Yorker, New York City, November 10-14, 1952.

This course is open to all physicians, but the registration will be limited. Tuition fee is \$50.00; applications will be accepted in the order in which they are received.

A copy of the prospectus together with an application form can be secured from the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

This course has been approved for credits by the American Academy of General Practitioners.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

Conservation of human resources will be the theme of the twenty-ninth annual convention of the National Society for Crippled Children and Adults

to be held at San Francisco's Fairmount Hotel, October 26-29, according to an announcement by Lawrence J. Linck, executive director of the Easter Seal Society.

Hundreds of volunteers and professional workers with the crippled are expected to attend the convention marking the thirty-first anniversary of the National Society. Nationally recognized authorities in all professional fields related to the handicapped will participate in the program.

Davis E. Geiger, Ashland, Kentucky, president of the Easter Seal Society and a nationally known leader in work for crippled children for more than 25 years, will preside at the four-day meeting.

The convention, which will feature general sessions during the morning and seminars for professional workers in special fields in the afternoon, will officially open Monday, October 27, with presentation of the colors by handicapped Girl Scouts of the San Francisco area, followed by a roll call of states.

AMERICAN MEDICAL WRITER'S ASSOCIATION

Dr. Walter C. Alvarez of Chicago, nationally known medical editor, author and teacher, has been honored as recipient of the first Honor Award to be given by the American Medical Writer's Association. The award, consisting of a gold medal and certificate was presented to Dr. Alvarez at the dinner on the occasion of the ninth annual meeting of the association at the Jefferson Hotel, St. Louis, October 1. Dr. Alvarez is editor-in-chief of *Modern Medicine*, professional lecturer at the University of Illinois College of Medicine, and has had a distinguished career as gastroenterologist and teacher at the Mayo Foundation, University of Minnesota.

Dr. Harold Swanberg of Quincy, Illinois, nationally known radiologist, medical editor and organizer, was honored on the same occasion as recipient of the first Distinguished Service Award to be given by the American Medical Writer's Association. Dr. Swanberg is editor of the *Mississippi Valley Medical Journal and Radiologic Review*, secretary of the Mississippi Valley Medical Society (since 1935), and secretary of the American Medical Writer's Association since the organization in 1940.

MISSISSIPPI VALLEY MEDICAL SOCIETY

Dr. Willard O. Thompson, Chicago, nationally known endocrinologist, teacher and medical author, has been honored by the Mississippi Valley Medical Society as its Distinguished Service Award Recipient for 1952. The award, consisting of a gold medal and a certificate, was presented to Dr. Thompson at the banquet on the occasion of the seventeenth annual meeting of the society at the Jefferson Hotel, St. Louis, October 2. Dr. Thompson is professor of Medicine, University of Illinois, editor of the *Journal of Clinical Endocrinology* and past-president of the Mississippi Valley Medical Society.

Dr. Philip S. Hench of Rochester, Minnesota, internationally known internist and research worker, was also honored by the Society as its Honor Award Recipient for 1952. Dr. Hench is professor of medicine, Mayo Foundation, University of Minnesota, and a 1950 Nobel Laureate in physiology and medicine.



A most cordial welcome awaits physicians of the South attending the Miami meeting of the Southern Medical Association. The meeting will consist of forty-nine half-day sessions presented by the twenty-one sections of the Association, which embrace every phase of medical practice. In addition to the section sessions there will be a general session, the annual dinner of the Association and outstanding scientific and technical exhibits.

This meeting will be the opportunity of the year for physicians of the South to attend a complete general medical meeting and at the same time enjoy a much-needed vacation during one of the most delightful periods of the year in beautiful Miami.

All activities of this meeting will be in the Municipal Auditorium in Bayfront Park and in near-by hotels, everything within walking distance. Good hotel accommodations are available for all who wish to attend this outstanding medical meeting.

Regardless of what any physician may be interested in, regardless of how general or how limited his interest, there will be at Miami a program to challenge that interest and make it worthwhile for him to attend.

Members of state and county medical societies may attend. Eligible physicians, members of state and county medical societies in the South can be and should be members of the Southern Medical Association. The annual dues of \$10.00 include the Southern Medical Journal, a journal most valuable to physicians of the South, one that each should have on his reading table.

SOUTHERN MEDICAL ASSOCIATION
Empire Building
Birmingham 3, Alabama

AMERICAN PUBLIC HEALTH ASSOCIATION

The eightieth annual meeting of the American Public Health Association will meet in Cleveland, Ohio, October 20 to 24. The annual meetings of 38 related organizations will be held at the same time. Headquarters will be the Public Auditorium in Cleveland and some 5,000 public health specialists from all parts of the free world are expected to attend.

The American Public Health Association is the professional society of more than 12,000 men and women in public health work in the United States, Canada, Mexico, and Cuba. The annual meeting is the largest assembly in the world of public health workers. More than 400 speakers and discussants will participate in the sessions, workshops and panel discussions. Local arrangements are in charge of Dr. Harold J. Knapp, Commissioner of Health of Cleveland.

MEDICAL RESEARCH GRANTS ANNOUNCED BY LASDON FOUNDATION

Grants for medical research totalling \$264,424 have been appropriated for 1952 by the Lasdon Foundation, it was announced recently by William S. Lasdon, Chairman of the Board. More than a score of institutions here and abroad will share in the grants.

Dr. Morris Fishbein, Editor of the World Medical Association Bulletin, and Postgraduate Medicine, is one of the consultants to the Lasdon Foundation on the making of grants and on research problems.

The Foundation is a philanthropic organization established four years ago by the Lasdon brothers, William S., Milton S., Stanley S. and J. S., to support research exclusively in the fields of medicine and health, an interest stemming from the Lasdon family's long affiliation with the pharmaceutical industry. The four Lasdon brothers have been associated for many years in the Nepera Chemical Company, pharmaceutical manufacturers of Yonkers, New York.

FEDERAL SECURITY AGENCY Public Health Service

Appointment of Dr. James A. Shannon as Associate Director of the National Institutes of Health was announced today by Surgeon General Leonard A. Scheele of the Public Health Service, Federal Security Agency.

Dr. Shannon succeeds Dr. Norman H. Topping, whose appointment as vice president in charge of medical affairs at the University of Pennsylvania becomes effective November 1. For the past three and one-half years, Dr. Shannon has served as Associate Director of the National Heart Institute, a major research unit within the National Institutes of Health.

Dr. Shannon is widely recognized for his original research in kidney function, chemotherapy, and malaria. He has served as guest investigator at the Physiological Laboratory, University of Cambridge, England, and as a member of the staff of the Marine Biological Laboratory at Woods Hole, Massachusetts.

Dr. Shannon resides at 4511 Sleasord Street, Bethesda, Maryland.

Dr. Norman H. Topping, of the Public Health Service of the Federal Security Agency, has been appointed vice president of the University of Pennsylvania in charge of medical affairs, effective November 1, Dr. Leonard A. Scheele, Surgeon General, announced today.

Dr. Topping is associate director of the National Institutes of Health at Bethesda, Maryland, research branch of the Public Health Service and an assistant surgeon general.

* * *

To stimulate satisfactory uniform labeling of chemical products, a Public Health Service committee is being reactivated to work with the Manufacturing Chemists Association.

This labeling program, Dr. Scheele indicated, has been developed for bulk packages of chemicals intended for commercial use and in no way affects the provisions of the Federal Caustic Poison Act, which applies to some caustic and corrosive chemicals intended for household use, or the Federal Food, Drug, and Cosmetic Act, which requires adequate warnings on the labels of all drugs.

* * *

To demonstrate how state and local health departments can help meet the health needs of older people, a hygiene of aging program is being established in the Public Health Service of the Federal Security Agency, according to an announcement by Surgeon General Leonard A. Scheele.

The program will be operated by the Division of Chronic Disease and Tuberculosis of the Bureau of State Services.

Dr. Cletus L. Krag, former research assistant of the Division of Gerontology, Washington University School of Medicine, will direct the program.

* * *

Detailed physical examinations of over 1,100 workers in uranium mines and mills in Colorado, Utah, New Mexico, and Arizona have revealed no evidences of health damage from radioactivity, according to an interim report to the industry released by the Public Health Service of the Federal Security Agency.

The examinations are part of a study of occupational health conditions in the uranium industry that has been under way since 1950.

(BULLETIN BOARD CONTINUED ON PAGE 592)

Classified Advertisements

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BOOK REVIEWS

Toxemias of Pregnancy. By William J. Deickmann, S.B., M.D. Ed. 2. 751 pages. Price, \$14.50. St. Louis: The C. V. Mosby Company, 1952.

This is the second edition of the text, the first having been published in 1941. Rather than a textbook, it is a source book on toxemia of pregnancy in all its ramifications. The edition is somewhat enlarged, and has been completely revised.

The first portion of the book is devoted to the physiology of pregnancy. Considerable stress is placed on the changes in the electrolytes and in the role of the kidney. The etiology of eclampsia is discussed, but no conclusions are drawn, since the solution of this problem seems as far away as ever. The remainder of the book is devoted to the clinical aspects, treatment, and ultimate prognosis for mother and infant.

Although the book is not well designed for the medical student, it is, as previously stated, an excellent review of all the literature concerning this particular complication of pregnancy.

The bibliography is extensive. The index is excellent.

Physician's Handbook. By Marcus A. Krupp, M.D., Assistant Clinical Professor of Medicine, Stanford University School of Medicine; Director, Palo Alto Medical Research Foundation, Palo Alto; Norman J. Sweet, M.D., Assistant Professor of Medicine, University of California School of Medicine, San Francisco; Ernest Jawetz, Ph.D., M.D., Associate Professor of Bacteriology and Lecturer in Medicine and Pediatrics, University of California School of Medicine, San Francisco; and Charles D. Armstrong, M.D., Clinical Instructor in Medicine, Stanford University School of Medicine. Price, \$2.50. 380 pages. Los Altos, California: University Medical Publishers, 1952.

This handy pocket-size reference manual is packed with bits of information useful to the physician. The fact that this is the seventh edition in 11 years attests to the place it has made for itself.

Throughout the book outlines for various types of physical and laboratory examinations are given. Descriptions of the techniques of many tests, with tables of normal values as well as illustrations by line drawing techniques, cover both diagnostic and therapeutic measures.

The book is conveniently divided into 30 chapters. The ingenious system of black lines at the edge of the page in lieu of a thumb index to find chapters quickly is used again. In addition there is a detailed subject index at the end. This book should be of help to medical student technicians as well as practicing physicians.

Living With Cancer. By Edna Kaehele. 160 pages. Price, \$2.00. Garden City, New York: Doubleday and Company, 1952.

The author of this little book tells of her struggle to live after a doctor had given her six months to wind up her affairs and depart in peace. Since then, she has lived six years and is still going strong, although she says the cancer is still active. It is obvious that Mrs. Kaehele is deriving a great deal of satisfaction from having fooled her doctors, and it is hard to escape the suspicion that she dramatizes her case considerably. Nevertheless, there is much

that a doctor can learn from it, and an uncomfortable amount of truth in many of her comments. For example, "Cancer is a deadly, loathsome enemy, and one to guard against, but I am convinced that fully as many people die of the fear of it as are killed by the cancer itself. Campaigns undertaken to 'educate' the public have all too frequently served only to keep alive ancient fears."

Mrs. Kaehele is wrong, however, in saying that "cancer . . . is as out of control today as when it was first observed . . . isolated cases are 'cured' by medical science." There are too many thousands of patients living from 5 to 25 years after treatment—or even longer—to be called "isolated cases."

Mrs. Kaehele describes in detail her radiation therapy, and the dreadful nausea that followed. It is quite possible, however, that after her nausea had run its course, the return to appetite and strength that came gradually may have meant that the treatment had been more effective than she was willing to admit. Certainly all experienced physicians have seen patients recover from cancers that seemed hopeless before treatment was begun.

The book should help doctors be more sympathetic and tactful in dealing with victims of cancer—and should help the victims be more optimistic. It is to be hoped that Mrs. Kaehele will live out her life expectancy, and that the rest of her life will be as fruitful as have the six years since she was told of her disease.

The Principles and Methods of Physical Diagnosis. Correlation of Physical Signs with Physiologic and Pathologic Changes in Disease. By Simon S. Leopold, M.D., Associate Professor of Clinical Medicine, School of Medicine and Graduate School of Medicine, University of Pennsylvania; Director of the Teaching of Physical Diagnosis, School of Medicine; Chief of the Thoracic Clinic, Hospital of the University of Pennsylvania. 430 pages with 390 illustrations. Price, \$7.50. Philadelphia and London: W. B. Saunders Company, 1952.

This is yet another textbook on physical diagnosis, evidently issued because of the feeling that a really good survey in this field is a crying need. Such a volume is surely required, but this effort, despite its imposing title, does not fulfill the necessary criteria.

While the section on the examination of the chest is quite good, this book represents merely another attempt along standard lines to cover a subject which defies such an approach. In fact, any such text which offers only a superficial consideration of history-taking and of the correlation of signs and symptoms cannot be expected to be the answer.

The adage, "One picture is worth a thousand words," still holds, but the illustrations must be of good quality and not repetitious. A good photograph showing cervicofacial actinomycosis might well have been substituted for one of the two patients with Hodgkin's disease, and many of the poorer reproductions should have been omitted entirely.

There are also several statements with which many physicians would take issue. For instance, the author states (p. 352), "Subacute bacterial endocarditis . . . is due to streptococcal bacteremia, usually of the viridans group," when many cases of gonococcal, coliform, and staphylococcal endocarditis have been reported. Again, when luetic aortitis is discussed (p. 267), it is not the age of the patient

but the duration of the disease which is related to the onset of cardiovascular syphilis. Likewise the terms "heredosophilis" and "mitral obstruction" are poorly chosen and misleading. Finally, repeating many of his fellow authors, the writer makes no mention of the delayed deep tendon reflex relaxation time so characteristic of myxedema.

Such an unevenly written and incomplete book cannot honestly be recommended to the medical profession at large.

Surgery of the Endocrine System. Recent Advances Applied to Surgical Problems. By James Hardy, M.D., Assistant Professor of Surgery, University of Tennessee Medical College. 153 pages. Price, \$5.00. Philadelphia and London: W. B. Saunders Company, 1952.

In this book the author has summarized in very brief form a wealth of information on present-day concepts of the endocrine system, from both a physiologic and a surgical standpoint. He has paid especial attention to the abnormalities of function caused by injury or disease. He quotes various authorities in their special fields of investigation, besides giving the reader the benefit of a wide experience of his own. The bibliography appended is extremely complete.

The first chapter is an excellent brief discussion of the present-day concept of the alarm reaction as it applies to the surgical patient. The author quotes from various authorities regarding investigative work on cortisone and ACTH, and theorizes on the possible role of ACTH in the production of dehiscence of surgical wounds.

Chapters 2 and 3 discuss body fluids, shock, and nutrition. Chapter 4 deals with the process of convalescence, and goes into some detail as to the effects of rest in bed and of early ambulation.

In chapters 5 and 6 there are most interesting discussions of the relationships between infections and hormones, particularly the part that hormones play in combatting infection and in speeding repair.

The remainder of this monograph consists of brief but excellent discussions of the surgery of the thyroid, parathyroid, pancreas, adrenals, pituitary, thymus, and gonads.

It is rare that one sees such a wealth of information compiled in so small a book.

Lederle Announces Varidase

Another Lederle "first"—Varidase streptokinase-streptodornase — announced recently by Lederle Laboratories, makes available to the medical profession for the first time an enzyme product combining streptokinase and streptodornase in a single clinically-proven product.

Varidase dissolves clotted blood, viscous pus, and fibrinous accumulations within the body. It is useful in surgery and in skin grafting by aiding in the removal of dead tissue and hastening tissue regrowth. Furthermore, it clears the way for treatment with aureomycin and other antibiotics.

Varidase is indicated in the treatment of hemorrhax, hematoma, empyema, osteomyelitis, draining sinuses, tuberculous abscesses, infected wounds or ulcers, severe burns, and other chronic suppurations. Its effectiveness in the treatment of other conditions is being extensively investigated and gives promise of a far wider range of usefulness.

Varidase is supplied in vials containing 100,000 units of Streptokinase and 25,000 units of Streptodornase. List price per vial is \$5.00.

In Memoriam

JARVIS RUSSELL TERRY, M.D.

Dr. Jarvis Russell Terry, 72, for 41 years a physician here and holder of numerous professional and public honors during this long period, died at his home at 206 West Center Street, Lexington, North Carolina, on September 6, 1952.

Dr. Terry had not been in vigorous health for the past two years or more but had continued his practice with only brief interruptions since undergoing major surgery over two years ago. He was active in his medical practice until a very short time before death. There was rapid decline of his health during his last week.

Dr. Terry was born in Orange County, July 20, 1880, the son of the late Joseph W. and Queen Betts Terry. His esteemed father, a Confederate veteran, spent his final years at the home of his son and family and had many warm friends in Lexington.

Dr. Terry graduated from Trinity Park School, taught three years in the public schools of South Carolina and then attended the University of Nashville for a year before entering the University of Louisville medical school, from which he received his medical degree in 1911.

He married Miss Lola Leigh Morris of Greensboro. She survives him, along with two daughters, Mrs. R. C. Seaks of Washington, D. C., and Mrs. Allan Pickard of Lexington; one son, Joe G. Terry of this city; three grandchildren; a half brother, H. G. Terry of Durham, and a half sister, Mrs. F. I. Wilson of Jonesboro.

Throughout the years many honors came to Dr. Terry from fellow physicians, local citizens, and state officials. He served for a number of years on the city school board, was for several years county coroner, and had for a dozen years or more been a trustee of the North Carolina Tuberculosis Sanatorium, serving as a member of the building committee during the marked physical expansion of this great institution.

Only last year he was president of the Davidson County Medical Society. For some 12 summers he attended the Southern Pediatric Seminar of Saluda, where fellow physicians elected him president several years ago. He had served as physician for the Junior Order Children's Home—since its opening here, and was for years a Southern Railway surgeon.

Dr. Terry was particularly devoted to the Rotary Club, of which he had for many years been a member and of which he was a past president. Over the years he had built up a perfect attendance record said not to have been equalled by any member in the history of the club.

A loyal and devoted Methodist, Dr. Terry had been a member of First Methodist Church here since locating in the city, and had served on its board of stewards and in other helpful capacities.

Dr. Terry was a very popular individual generally as well as in the medical profession. He was a very faithful attendant at many medical meetings, and his passing will leave a gap in the medical profession of this section that will be hard to fill.

Respectfully submitted,
JOHN M. ANDREW, M.D.,
Chairman, Bereavement Committee,
Davidson County Medical Society

BULLETIN BOARD

(CONTINUED FROM PAGE 589)

Dr. G. Burroughs Mider of Rochester, New York, has been appointed Scientific Director at the National Cancer Institute of the National Institutes of Health, according to an announcement by Surgeon General Leonard A. Scheele of the Public Health Service.

Dr. Mider is professor of cancer research and coordinator of cancer teaching in the School of Medicine and Dentistry at the University of Rochester.

Children's Bureau

A special grant to aid children with serious heart conditions in 12 Mid-western States has been made by the Children's Bureau, according to an announcement by Dr. Arthur J. Lesser, director of the Bureau's division of health services, Federal Security Agency. Children with congenital heart malformations, such as "blue babies," whose conditions can be helped by surgery, will have the chance to be operated on by experts in heart disorders. The program will use facilities located at Children's Memorial Hospital, Chicago, where there are surgeons and members of related professions skilled in diagnosing and performing these delicate operations.

UNITED STATES ATOMIC ENERGY COMMISSION Reactor-Produced Polonium Now Available for Purchase

Reactor-produced radioactive polonium-210 may now be purchased at Oak Ridge for research activities. This was announced recently by the Isotopes Division of the Atomic Energy Commission on the eve of the sixth anniversary of the nation's isotope distribution program.

Polonium is the first reactor-produced radioisotope to be sold which emits alpha particles. It can be used also as a source of high energy neutrons.

The Isotope Division, a part of the AEC's Oak Ridge Operations, and the U.S. licensing agency for purchases of significant quantities of radioactive materials, said the newly available polonium is needed by research groups for physical and biological investigations.

VETERANS ADMINISTRATION

The Veterans Administration is instituting a four-month training course in psychiatry and neurology to fit the needs of physicians without such previous training who are assigned to duty in 22 predominantly psychiatric hospitals. Physicians who have been engaged in general practice may request this training upon applying for a position at one of these hospitals.

The course will be held at the VA Hospitals in Coatesville, Pennsylvania; Palo Alto, California; and a joint Downey-Hines, Illinois, program near Chicago, Illinois. Physicians will be employed at salaries commensurate with their training and experience (salary range: \$5,500 to \$11,800 per annum) and assigned to the course with travel and per diem for the four-month period.

Information and applications may be obtained from your nearest VA Hospital or Regional Office, or by writing to the Chief Medical Director, Veterans Administration Central Office, Washington 25, D. C.

Dr. Tiffany Lawyer, Jr., an associate in neurology at Columbia University, has been appointed as chief of the neurology section, of the psychiatry and neurology division, Veterans Administration Department of Medicine and Surgery, Vice Admiral Joel T. Boone, USN (MC) Retired, VA Chief Medical Director, announced recently.

A World War II Navy veteran, Dr. Lawyer succeeds Dr. Pearce Bailey, who resigned recently to accept a position as director of the Institute of Neurological Diseases and Blindness of the U. S. Public Health Service.

As chief of the neurology section, Dr. Lawyer will coordinate policies in the treatment of more than 10,000 veteran patients suffering from neurological diseases in VA hospitals and outpatient clinics.

* * *

Post-Korea veterans who need outpatient treatment for disabilities that are presumed to have resulted from their service will be provided needed treatment by Veterans Administration until VA can determine whether their disabilities actually are service-connected.

Under existing regulations, outpatient treatment may be given only for service-connected disabilities after VA has determined that the disabilities actually are service-connected and then has authorized the treatment.

The change to permit treatment for presumed service-connected disabilities before final determination has been made applies only to veterans who served in the active U. S. military or naval forces any place in the world on or after June 27, 1950, the start of the Korean hostilities, and before a date yet to be set.

* * *

A veteran from North Carolina who studied for college from his bed in a Veterans Administration hospital has just been awarded his A.B. degree in journalism and, because of his high grades, was admitted to Phi Beta Kappa, honorary scholastic fraternity.

The veteran, George A. Booze of Winston-Salem, has spent five of the past ten years in VA hospitals, undergoing treatment for tuberculosis. He won his degree, by correspondence, from the University of North Carolina, while a patient in the VA hospital in Oteen, North Carolina. A grade average of 95.42 per cent entitled him to the coveted Phi Beta Kappa key. He is now awaiting his discharge from the hospital, and a chance to reach his long-awaited goal of newspaperman.

Lilly Replaces Stocks Damaged by California Quake

Eli Lilly and Company, Indianapolis pharmaceutical and biological manufacturer, has announced that Lilly products destroyed in California earthquakes will be replaced without cost to hospitals and retail pharmacists. It is an odd coincidence that the Lilly replacement policy was set up after another California disaster, that of 1906 in San Francisco.

The Lilly representatives in the Tehachapi vicinity are making the replacement of damaged Lilly stock their first order of business. The Lilly company also maintains a reserve of typhoid vaccine and other biological products in concentrated form for fast shipment during disasters. The company, aware of its public responsibilities in catastrophes, has its shipping personnel standing by twenty-four hours a day so that it can rapidly furnish products needed in disaster areas.

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VERTIGO

B. W. ARMSTRONG, M.D.

CHARLOTTE

Every physician, no matter how general or specialized his practice, has patients with vertigo. Although this condition occurs more commonly in patients over 40, children less than 4 years of age have described their symptoms so graphically as to leave no doubt that they have experienced true vertigo. Its causes are many, and among them are such widely different conditions as leukemia, syphilis, multiple sclerosis, tumors of the brain, and infections in the ear. Whether we practice dermatology or internal medicine, geriatrics or pediatrics, there is no escape from the problem of vertigo. Lack of discrimination in the use of the terms vertigo, syncope, giddiness, lightheadedness (foolish feeling, black-out spells), swimming sensation and dizziness has created much confusion about vertigo. These terms do not have the same meaning. Faithful attention to the details of signs and symptoms and to the correct definition of the word "vertigo" is essential if there is to be uniformity in diagnosis, treatment, and appraisal of results.

Definition

True vertigo is, literally, an experience of disordered orientation and may be subjective or objective. When the patient feels that he himself is moving in space, he is said to have subjective vertigo; but when he has the sensation that his environment is moving, the vertigo is said to be objective. Most patients experience a rotary sensation but others describe a falling, swaying, sinking or wave-like motion. Vertigo of ocular origin may not be accompanied by the sensation of motion.

Diagnosis

Many patients complain of dizziness, black-

out spells, giddiness, swimmy-headedness, or a foolish feeling. These expressions are loosely applied by patients to cover a wide variety of conditions, ranging from chronic nervous exhaustion to epilepsy. The first consideration in the differential diagnosis is to establish that the patient actually has vertigo. In some cases this point will be easily determined from the history, while in others it may be quite difficult to establish. Even when the examiner is convinced that the patient has true vertigo, the effort to locate the cause or causes may be time-consuming and frequently fruitless.

Anatomy and Physiology

Equilibrium is maintained by the vestibular system, largely through the peripheral labyrinths, and is assisted by the ocular and cerebellar systems. A knowledge of the normal postural and righting reflexes is essential to an understanding of the mechanisms causing vertigo.

The vestibular labyrinth consists of three semicircular canals and the utricle. The utricle provides information about the position of the head, and the semicircular canals register motion, changes in the rate of motion, or change in direction. The investigations of Magnus⁽¹⁾ have shown the importance of labyrinthine reflexes in maintaining posture. A knowledge of the labyrinthine righting reflexes is also important in the understanding of vertigo. When an animal is blindfolded to exclude ocular impulses, it is still able to maintain its head in normal relationship with the body, if the labyrinths are intact. This reflex is maintained even after the cerebrum is removed. The ocular righting reflexes, however, depend upon an intact cerebrum and are lost when the conscious centers are removed. In man, the ocular righting reflexes are perhaps more im-

Read before the Second General Session, Medical Society of the State of North Carolina, Pinehurst, May 7, 1952.
From the Charlotte Eye, Ear and Throat Hospital.

portant than those of the labyrinth. Visual impulses also aid in orientation as to space and motion. Proprioceptors in the neck, trunk and limbs provide the remaining information needed for normal orientation.

Impulses received from the receptors in the labyrinth are conveyed by the vestibular nerve to the medulla and are distributed to the vestibular nuclei. Some of the secondary tracts given off from these nuclei are worthy of mention: (1) fibers to the cerebellum, (2) descending fibers to the spinal cord (vestibulo-spinal tract), (3) ascending fibers to the oculomotor nuclei and red nucleus (posterior longitudinal bundle), and (4) fibers to the thalamus and sensory cortex by which the sensation of vertigo is transmitted.

The staggering gait of a patient with vertigo may be considered to be a result of disturbed righting reflexes. When this disturbance is severe, he is unable to maintain his head in its normal relationship with his body, and, consequently, falls.

The physiology of equilibrium may be briefly summarized as follows: Vision is of great importance in spatial orientation. Awareness of body position is accomplished by proprioceptors in the neck, trunk and limbs. The vestibular apparatus aids in awareness of the position and movement of the head in space. Integration of these sensations by the cerebellum, posterior longitudinal bundle, vestibular and red nuclei, when interpreted by the cerebrum, results in orientation. Disease in any one of these results in vertigo. It is evident that vertigo may be ocular, central or vestibular in origin.

Types and Causes of Vertigo

Ocular vertigo

Although many patients with vertigo are referred to the ophthalmologist for examination of their eyes, the cause will rarely be found in the ocular mechanism. It is true that the ophthalmologist may report valuable information, such as the finding of choked disks when there is increased intracranial pressure; but we should not expect a new pair of glasses to solve the problem of vertigo. According to Adler⁽²⁾, severe vertiginous attacks are never of ocular origin. Individuals may have mild vertigo when they wear glasses for the first time. This is usually encountered in those who wear strong convex lenses. It may be due to the prismatic

effect obtained by looking through the margins of the lenses, or result from the magnification of the retinal image if the glasses are placed in front of the anterior principal focus of the eye. These conditions result in transient vertigo because we interpret distance and location of objects by the size and position of retinal images⁽²⁾.

Ocular muscle imbalance does not commonly cause vertigo, but motion sickness has been found to be more common among individuals with this condition. In motion sickness there is always stimulation of the semi-circular canals; and since all of the canals supply impulses to the ocular muscles (except for internal and external recti), the possibility for abnormal stimulation with resulting vertigo is apparent. The onset of ocular muscle paralysis is always accompanied by vertigo. This is largely due to diplopia, although other factors are involved. Vertigo arising from paralysis is of short duration and may be relieved by placing a patch over the affected eye. An example of ocular vertigo familiar to all of us is the fear of falling that occurs when looking down from high places. This vertigo arises because the usual objects of fixation are absent, and it will disappear if the eyes are closed⁽³⁾. Other types of ocular vertigo need not be considered here.

Central vertigo

Unlike vertigo caused by labyrinthine disease, vertigo which has its origin in the central nervous system is not paroxysmal. It is often of long duration and is frequently associated with other signs of central nervous system disorder, such as cranial nerve palsy, cerebellar signs, and papilledema. The description of the attacks is seldom as clear cut as that given by patients with vertigo of labyrinthine origin.

Brain tumor: Vertigo does not have specific localizing significance in cases of brain tumor. There is a widespread impression that vertigo is a common symptom of brain tumor. Experience has shown that this concept is not justified; in fact, according to Alpers⁽⁴⁾, vertigo is not an important symptom of this disease. True vertigo is seldom associated with cerebral lesions, although it has been observed by Spiegel and Alexander⁽⁵⁾ in patients with tumor of the frontal lobe. Vertigo is more common in patients with neurologic disorders of the posterior fossa, and particularly of the brain stem. It is neither epi-

sodic nor severe, however, except when associated with tumors of the fourth ventricle (Bruns's syndrome)⁽⁶⁾. Even with tumors of the brain stem, it was present in only 7 out of 21 cases in one series⁽⁴⁾. Other lesions of the brain stem—encephalitis, multiple sclerosis, and vascular accidents—are more apt to cause vertigo.

Vertigo is not an early symptom of cerebellar tumor and is seldom severe in this condition. The incidence of vertigo in patients with tumors of the cerebellum varies in different series, but the average is probably about 50 per cent^(4,7). Tumors of the cerebellopontine angle, including those of the acoustic nerve, produce vertigo late in the course of the disease in something less than half of the patients^(4,8).

Degenerative lesions: Sudden vertigo has been observed in patients with multiple sclerosis⁽⁸⁾. This condition usually appears at an earlier age than vascular lesions, and in most cases other signs of the disease are present. Multiple sclerosis must always be considered in patients with vertigo presumed to arise from a lesion of the brain stem. Disseminated encephalomyelitis may be difficult to differentiate from multiple sclerosis⁽⁸⁾. Vertigo is an early and usually persistent symptom of syringobulbia. Uncontrolled diabetes may cause vertigo resulting from multiple small areas of softening in the brain stem⁽⁹⁾.

Vascular lesions: Occlusion of the posterior inferior cerebellar artery produces sudden, severe vertigo, associated with loss of pain and temperature sensation in the face, paresis of the palate and vocal cord, and Horner's syndrome on the same side. There is also analgesia below the neck on the contralateral side, as well as difficulty in speaking and swallowing. Frequently, vertigo is the last symptom to disappear as these patients recover. Cerebral arteriosclerosis is the most common vascular lesion producing vertigo. It is due to anoxemia and degenerative changes, and hence does not respond to treatment. Although mild in nature, it is persistent and often distressing to both the patient and his physician.

Trauma: Vertigo may occur as a result of any severe head injury. It is most common after concussion and is also frequently present after basilar fracture. The vertigo occurring after head injury is seldom spontaneous but usually is associated with postural changes. It may continue for years. In these

cases, it may be difficult to differentiate true vertigo from psychogenic changes and "compensationitis." In some instances, psychotherapy may be of value.

Inflammation: Cerebellar abscess and pyogenic processes in the cerebellopontine angle are sometimes accompanied by vertigo. Syphilitic meningitis of long duration, when it is located in the lateral recess, may produce a syndrome of facial paralysis, deafness, and vertigo^(7a).

Aural vertigo: With rare exceptions all severe vertigo has its origin in the ear. There should be little difficulty in recognizing severe labyrinthine vertigo, and yet this condition is often confused with food poisoning, "biliousness," or syncope. The severe attack is characterized by its abrupt, apoplectic onset, the sensation of movement (generally rotational), nausea, vomiting, prostration, sweating and, usually nystagmus. The patient will often be found lying on the side of the normal ear, because his vertigo is less intense in that position. He will resist movement, for even the slightest motion will intensify his vertigo. The quick component of the nystagmus is directed toward the sound side, and there is past pointing toward the affected side. These patients are often so badly frightened that they fear death is at hand.

In contrast, labyrinthine vertigo may be so fleeting as to be hardly recognized by the patient as a sensation of motion. Between these extremes, there are many patients who experience vertiginous attacks of varying severity. Vertigo is one of the most annoying of all symptoms, because of its unpredictable nature. It should be stressed, however, that periods of unconsciousness are not characteristic of peripheral disease, and when these occur a central lesion must be suspected.

Mechanical: Occasionally patients whose external auditory canal is blocked by foreign bodies, cerumen, or inflammatory swelling will complain of vertigo. These conditions are self-limited, and local treatment is all that is necessary. Acute closure of the eustachian tube, which sometimes occurs in the course of acute upper respiratory infections or aero-otitis media, may cause mild vertigo.

Vascular: Vertigo may be a symptom of arteriosclerosis, hypertension, anemia, or vascular accidents within the labyrinth. Arteriosclerosis has been discussed under "Central Vertigo." Furstenberg⁽¹⁰⁾ found that one

third of the hypertensive patients in a large series had vertigo which they described as a persistent sensation of giddiness. These patients also complained of tinnitus and exhibited some impairment of hearing. He observed 37 patients who had had a splachniectomy to reduce their blood pressure. In most patients, there was not only a striking decrease in blood pressure, but also a disappearance of their vertigo.

A vascular accident in the labyrinth is followed by an explosive attack of vertigo, nausea and vomiting, with tinnitus and unilateral deafness. After a few days, the severe symptoms subside. The equilibrium gradually improves, but the hearing loss is usually permanent.

Trauma: Vertigo commonly follows injuries to the ear, particularly when there is traumatic rupture of the tympanic membrane or bleeding into the middle ear. Fortunately, this vertigo is of short duration in most instances and requires no treatment. In more severe injuries, in which there may be damage to the vestibular apparatus, the vertigo may persist for years.

Certain types of ear surgery are frequently followed by vertigo of varying degrees. It may be a symptom following mastoidectomy, and in our experience has been more common after a radical or modified radical mastoidectomy, particularly if the packing is quite tight. It has also been observed for several days following the fenestration operation. Severe vertigo is present after destruction of the labyrinth for the relief of Meniere's syndrome and is also present after section of the eighth nerve.

Inflammation: Vertigo is a constant symptom in patients with labyrinthitis. Suppurative labyrinthitis occurs from the extension of an infection either in the middle ear and related structures, or in the subarachnoid space. Labyrinthitis was more common in the days before chemical and antibiotic therapy, but it is still encountered as a complication of otitis media and mastoiditis, either acute or chronic. Vertigo is a prominent symptom and is accompanied by loss of hearing, nystagmus, and otorrhea. Any patient who complains of vertigo and who has a discharging ear must be presumed to have labyrinthitis, until it is proven otherwise. Appropriate surgical and medical treatment is necessary.

Meningitic labyrinthitis results from an

extension of infection in the subarachnoid space, as is observed in meningococcus and pneumococcus infections. The destruction of the labyrinth is rapid and is accompanied by vertigo and usually bilateral loss of hearing. The vertigo subsides slowly, persisting to some degree for years. These patients have most difficulty when walking in the dark, because then neither the ocular nor the vestibular mechanism is functioning and they are dependent upon proprioception alone.

Motion sickness: The vertigo of motion sickness may be very severe and associated with nausea, vomiting, and prostration. Its similarity to the vertigo produced by lesions in the labyrinth is evident, and leads us to believe that the vestibular apparatus is chiefly involved. Deaf mutes without labyrinthine function are not subject to motion sickness. Disturbance in the ocular mechanism is another factor in the development of motion sickness. One main difference between peripheral labyrinthine vertigo and motion sickness is the absence of nystagmus in the latter⁽³⁾. The best treatment, of course, is to stop the motion when possible. Sedative agents, hyoscine, and, more recently, Dramamine have proved of value in many cases.

Toxic vertigo: Toxic vertigo commonly accompanies systemic diseases and may be caused by certain drugs. Some of the agents producing toxic vertigo are streptomycin, tobacco, alcohol, quinine, and salicylates. I have seen patients with vertigo which has persisted for years following the administration of streptomycin.

Allergy: There are many reports of vertigo resulting from hypersensitivity. It may occur as the only symptom, or associated with other allergic manifestations. In some patients with Meniere's syndrome the presence of hypersensitivity has been demonstrated, and the attacks have been controlled by the elimination of the offending allergen.

Any consideration of vertigo should include *Lermoyez's syndrome*. The syndrome first described by Lermoyez⁽¹¹⁾ consists of deafness and tinnitus, later followed by vertigo, nausea and vomiting. All of the symptoms subside after the vertiginous attack. Although Lermoyez suggested vasospasm as the cause, Eagle's cases presented convincing evidence of its allergic origin⁽¹²⁾. Even though there are repeated attacks, the prognosis is good as compared with Meniere's syndrome.

Meniere's syndrome: Meniere's syndrome is a common diagnosis which is often incorrectly applied to patients with vertigo. The syndrome described by Prosper Meniere⁽¹³⁾ in 1861, consisted of tinnitus, progressive deafness, and vertigo. It is my belief that the diagnosis of Meniere's syndrome should not be made in the absence of any one of these symptoms and unless there is a history of repeated attacks. The tinnitus is usually unilateral and may precede the other symptoms. The hearing loss is of the perceptive type and grows worse with each attack. When the hearing is completely lost in the affected ear, the attacks cease. The typical attack comes without warning, and the patient is seized with a whirling sensation that may literally throw him to the ground. In association with the vertigo the patient has nausea, vomiting, prostration, a rapid pulse and cold sweat—what Meniere called the "syncopal state."⁽¹³⁾ Nystagmus is present, its quick component being toward the sound side.

The pathologic basis of Meniere's syndrome was first accurately described by Hallpike and Cairns⁽¹⁴⁾ and has been confirmed by Lindsay⁽¹⁵⁾ and others. This condition is caused by an increase in the amount of endolymph, with resulting dilation of the endolymphatic system. It has not been established whether this increase is due to the overproduction of endolymph, or to failure of its normal absorption. It is not within the scope of this paper to discuss the controversy which has arisen over this question.

Etiologic Diagnosis

Of greatest importance is the oft-repeated, carefully recorded history. The following points should receive special consideration:

1. Did the patient experience true vertigo—that is, was there disordered orientation?
2. Was the attack accompanied by nausea and other vegetative symptoms?
3. Was it associated with deafness and tinnitus?
4. Have there been repeated attacks, and if so, has the patient been symptom-free between attacks?
5. Was there unconsciousness with or following the attack?

In doing an otoneurologic examination on patients with vertigo, the following points should be given particular attention:

1. Presence or absence of nystagmus, character and direction
2. Fundi—choking or pallor of optic disk

3. Cranial nerves, including corneal reflexes

4. Presence or absence of aural discharge

5. Hearing tests—gross and audiometric when indicated

6. Caloric response.

Nystagmus, not unlike vertigo, may be of central, ocular or labyrinthine origin. Central nystagmus is long standing and may be in any plane; other signs of central nervous system disorder are usually present. Ocular nystagmus is also of long duration; the movement is slower than in labyrinthine nystagmus, and the slow and quick components are poorly defined. It is associated with other evidence of ocular disease. Labyrinthine nystagmus is rhythmic and has well defined quick and slow components. It is of short duration and generally accompanied by vertigo.

The caloric test may be difficult to interpret in terms of localizing significance. It does, however, help to evaluate the vertigo. Many patients will volunteer that the caloric test reproduces a sensation similar to their attacks. This statement aids in confirming the diagnosis of labyrinthine vertigo in some cases. On the other hand, if the patient complains that the vertigo induced by the test is more severe than his attacks, it is a reasonable assumption that he has not been very dizzy.

Treatment

The prognosis for a single acute attack of vertigo is good. The severe vertigo lasts a few hours, and within a week most of the patients will be up and about, although they may complain of mild unsteadiness for weeks or even months. It makes little difference what form of treatment is employed in these cases. Equally good results can be obtained in this group with any rational type of treatment. The acute attack can be managed with sedatives and, if desired, Dramamine, intravenous histamine, pyridoxine, antihistaminics, or one of many other medications. In my experience, sedation is of greatest value. Dramamine, administered by mouth or by rectum, is helpful in many cases. Excellent results have been obtained with intravenous Benadryl.

Patients who complain of a little unsteadiness on change of position—that is, postural vertigo—may be best managed if attention is directed toward the circulatory system. This mild but persistent form of vertigo is often refractory, but good results can be ob-

tained by treating anemia and vasomotor disturbances. Nicotinic acid may be of value here.

Patients with persistent or recurring attacks of vertigo are the ones about whom we must be concerned. It is important to differentiate between disorder of the central nervous system, and disturbances of the peripheral labyrinthine mechanism.

Treatment of Meniere's syndrome

The treatment of Meniere's syndrome may be medical or surgical. I have had exceptionally good results with the Furstenberg program⁽¹⁶⁾, which consists of a low sodium diet and the administration of ammonium chloride in doses of 2 to 3 Gm. with each meal for three days; at the end of the three-day period, the drug is omitted for two days and then repeated. It is essential that large doses of ammonium chloride be given and that the schedule be followed. Water intake is not limited. Patients remain on this program for three to six months, and good results have been obtained in more than 80 per cent of our cases. Hearing has been improved in most of the patients whose disease was of relatively short duration. A few patients who have not responded to this program have been relieved by pyridoxine⁽¹⁷⁾, while others responded to nicotinic acid. Histamine has been of little value in our cases. Those patients who are not relieved by medical treatment are candidates for surgery.

Levy and O'Leary⁽⁸⁾ suggest that emotion, fatigue and endocrine disorders be considered as possible factors in cases of vertigo. They further state that one cannot successfully treat any paroxysmal disorder without psychotherapy. Patients with Meniere's syndrome need reassurance, for in some instances their fear of an attack is more disabling than the attacks themselves. Some patients refuse to venture out of their homes unaccompanied, even after their attacks have been controlled on a satisfactory medical program. Prolonged psychotherapy may be necessary to rehabilitate these patients.

Lake⁽¹⁸⁾ was the first surgeon to relieve vertigo by operation. In 1911, he reported 10 cases in which the lateral semicircular canal and vestibule had been opened and the stapes removed⁽¹⁹⁾, with good results. In spite of this report, intracranial section of the eighth nerve later gained popularity through the work of Dandy. He advocated selective section of the nerve in an effort to preserve

hearing, but succeeded in only 22 per cent of his cases⁽²⁰⁾. Even this degree of success is surprising when we remember that the disease itself affects both the cochlear and the vestibular mechanism.

Passe⁽²¹⁾ has performed upper dorsal sympathectomy on 88 patients with Meniere's syndrome, and reported that vertigo was relieved in 88 per cent of his cases. The hearing improved in the cases of short duration, but remained unchanged in those with profound nerve deafness.

Since the reports of Day⁽²²⁾ and Cawthorne⁽²³⁾ in 1943, destructive labyrinthotomy has become more and more the operation of choice among otologists. The procedure requires only 30 to 45 minutes, and is not only safe but is highly successful. Most of the patients are able to leave the hospital in seven to ten days and are back at work in three to four weeks. This period of disability compares very favorably with the prolonged convalescence required after nerve section. Williams⁽²⁴⁾ is of the opinion that labyrinthotomy is destined to replace nerve section in the treatment of persistent aural vertigo.

Summary

There has been much confusion about vertigo, and it will persist as long as we indulge in poorly defined terms and employ Meniere's syndrome as a diagnostic wastebasket. Vertigo is an experience of disordered orientation and is the result of a disturbance of the righting reflexes. Ocular vertigo, although common, is never severe and seldom causes the patient to seek medical attention. Vertigo due to disorders of the central nervous system has no localizing significance and is not an important symptom of brain tumor. It is usually mild to moderate in severity and tends to be prolonged. With rare exceptions, all severe vertigo occurring in episodes is of labyrinthine origin. Because of the benign nature of most vertiginous attacks, results of treatment should be appraised with great caution.

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Hypertension in the aged.—Hypertension is present in the majority of old people. It is more common in women than in men (it is to be recalled that women are more often obese and usually live longer than men). Hypertension begins in women at menopause and in men a little later, when retirement from business looms ahead. It is perfectly compatible with a long life expectancy. It is an indication of a somatic storm, such as current occlusion of the coronary artery, cerebral vascular accident or acute infection. It discloses emotional turmoil, such as worry, business or domestic crises, or fear of pain and dependency. Determination of the blood pressure is useful in revealing what is going on, but surely we have been rather stupid to take the reading per se as an indication of impending death.—Robert T. Monroe: A New Look at Old Age, J. Internat. Coll. Surgeons, 14:124 (July) 1950.

The tired mother syndrome is well known to most physicians. In its most common form an intelligent, tense, overconscientious young mother begins to feel rundown and tired. She becomes nervous and irritable and may develop any of a large number of symptoms which tend to worry and confuse her further. No psychoanalysis or deep probing is needed to understand the situation. Her work-day is sixteen hours; she works seven days a week. She probably has not had a vacation in years except for the brief time allotted for convalescence after childbirth. There are often worries about finances or ill health of the children. A careful physical examination, reassurance, and sympathetic advice often is all the treatment needed.—Lovshin, L. L.: Benign Nervousness, Ohio State M.J. 26: 272 (Oct.) 1950.

CHRONIC ILLNESS AND THE AGING POPULATION

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CHAPEL HILL

The purposes of this paper are simple: (1) to document the extent of two important and closely related trends (We all know that chronic diseases are becoming relatively more important and that the population is getting older, but it is difficult to realize the extent and the significance of the change.); (2) to indicate some of the ways in which medical care practices will be affected; (3) to indicate some of the things that may be done in the way of curbing disability from chronic disease and the aging process.

Spectacular achievements in preventive medicine have been made through environmental sanitation, immunization against acute communicable diseases, chemotherapeutic treatment, and prophylaxis of acute communicable diseases. We are on the threshold of a new era in preventive medicine, when triumphs must and will come from reduction in disability due to long term illness and the aging process.

The Growing Problem of Chronic Illness

The terms "chronic disease" and "chronic illness" cover a diverse category of conditions such as infections, nutritional disturbances, allergic manifestations, congenital anomalies, hereditary defects, metabolic defects and disturbances, functional and mental disorders, neoplastic diseases, and impairments or residua from acute disease and accidents. These conditions have in common only the fact that they may cause long term disability.

We might consider briefly the reasons for the increase in the importance of chronic illness. Is there evidence that chronic illness has actually increased in any age group? The answer is no. However, there are clearly two main reasons for the increase in importance:

1. There is a higher proportion of older people in the population. Chronic disease is not confined to older groups; in fact, one half of the burden occurs under the age of 45, and one half of invalidism due to chronic disease occurs under 55⁽¹⁾. However, since in 1950 in

⁽¹⁾Read before the Second General Session, Medical Society of the State of North Carolina, Pinehurst, May 7, 1952.

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Table 1
The Ten Leading Causes of Death in the
United States, 1900 and 1948

Rank	Causes of Death	Death rate per 100,000 population	Percentage of deaths from all deaths
1900			
1	Pneumonia and influenza	202	11.8
2	Tuberculosis	194	11.3
3	Diarrhea and enteritis	143	8.3
4	Diseases of heart	137	8.0
5	Cerebral hemorrhage	107	6.2
6	Nephritis	89	5.2
7	Accidents	72	4.2
8	Cancer	64	3.7
9	Diphtheria	40	2.3
10	Meningitis	34	2.0
1948			
1	Diseases of heart	323	32.6
2	Cancer	135	13.6
3	Cerebral hemorrhage	90	9.1
4	Accidents	67	6.8
5	Nephritis	53	5.4
6	Pneumonia and influenza	39	3.9
7	Tuberculosis	30	3.0
8	Premature birth	27	2.7
9	Diabetes mellitus	26	2.7
10	Arteriosclerosis	19	1.9

From Spiegelman, M.: Significant Mortality and Morbidity Trends Since 1900, Philadelphia, The American College of Life Underwriters, 1951, p. 5.

spite of the increase in the proportion of older people only one third of the population was over 45, the disproportionate occurrence in older people is clear.

2. The problem has become relatively more important because of the tremendous decrease in acute communicable disease.

Let us examine the evidence for the increase in importance of chronic illness.

Changes in mortality statistics

Table 1, from a report by Spiegelman⁽²⁾, shows the 10 leading causes of death in 1900 and 1948, with the death rate per 100,000 population for each cause in each year, and the per cent of deaths from all causes. Mortality statistics are our most complete health statistics, but it is important to realize that even with them one must make comparisons with care. In 1900 only a fraction of the country was in the death registration area; changes occur in diagnostic and classification practices that may make comparison of rank of the leading causes of death misleading. However, the changes in this 50 year period are so great as to be unquestionably real. In 1900 acute infections or groups of infections occupied four of the 10 places: pneumonia and influenza, first; diarrhea and enteritis, third; diphtheria, ninth; meningitis, tenth. In contrast, in 1948 only pneumonia and influenza, in sixth place, remained in the

Table 2
Most Frequent Causes of Sickness
Incidence

Annual Cases per 1,000 persons observed			
	Both	Male	Female
Acute nasopharyngitis, bronchitis..	122	109	135
Influenza	63	52	74
Accidents	47	47	46
Pharyngitis, sore throat	40	33	48
Diarrhea, enteritis	38	31	44
Tonsillitis, tonsillectomy	26	27	26
German measles	15	16	14
Measles	15	15	14
Heart, except rheumatic	13	11	15
Allergy (all forms)	12	10	13
Otitis media	11	11	11
Arthritis	10	8	11
Headache	9	3	15
Appendicitis	8	5	12
Chickenpox	8	9	7
Deliveries, abortions	16		32
Female genital, breast	16		32

Days Disabled

Annual Cases per 1,000 persons observed			
	Both	Male	Female
Heart, except rheumatic	149	166	133
Psychosis	92	109	75
Arthritis	88	123	53
Acute nasopharyngitis, bronchitis..	82	72	92
Tuberculosis (all forms)	80	94	67
Accidents	80	88	71
Rheumatic fever, rheumatic heart..	75	66	83
Influenza	61	45	76
Hypertensive vascular disease	55	61	49
Nephritis (all forms)	43	30	55
Psychoneurosis	41	57	26
Diabetes	33	22	44
Bones, joints, except tuberculosis, arthritis	31	20	41
Pneumonia	25	25	24
Pharyngitis, sore throat	24	17	32
Deliveries, abortions	34		67
Female genital, breast	16		31

Source: Collins, S. D.: Sickness Surveys in Emerson, H.: Administrative Medicine, New York, Thos. Nelson, 1951, p. 527. From Illness Study, Baltimore 1938-43. Based on full-time person-years of observation; males, 10,758; females, 11,021; all ages, including unknown ages. Incidence refers to disabling cases.

first 10. Turning to chronic illness we find that tuberculosis has fallen from second to seventh place, with a reduction in rate from 194 per 100,000 to 30 per 100,000 and in the percentage of all deaths from 11.3 per cent to 3 per cent. On the other hand, in 1900 chronic diseases occupied five of the 10 places, while in 1948 they occupied seven places instead of five, diabetes and arteriosclerosis having moved into the group. Diseases of the heart can be seen to have increased spectacularly in importance from 1900 to 1948.

Changes in morbidity statistics

Morbidity statistics are even more significant than mortality statistics when judging the importance of conditions which give rise to long term disability. A number of morbidity surveys have been conducted in this

country⁽³⁾. Among the more important are: (1) the Metropolitan Life Insurance Survey in 1915-1917; (2) the Hagerstown (Maryland) Surveys carried out in 1921-1924 with a resurvey in 1943⁽⁴⁾; (3) the CCMC (Committee on the Costs of Medical Care) Study in 1928-1931; (4) the National Health Survey in 1935-1936; (5) the Baltimore (Maryland) Survey in 1938-1943. All these surveys were carried out largely by the interview technique. The Hagerstown Survey material is made more significant by the resurvey; the National Health Survey was the largest; the Baltimore Survey was the most intensive.

Table 2, from an article by Collins^(3a), cites data from the Baltimore Survey showing the sex distribution of the 15 most frequent causes of illness and the 15 most important causes of disability in the Baltimore population studied. Minor acute respiratory and infectious diseases dominate the upper portion of the frequency of onset or incidence list. On the other hand, chronic illnesses as causes of disability occupy four of the first five and seven of the first 10 places. Study of the Baltimore data^(3a) by age groups shows that the incidence of chronic diseases remains low until the 45-65 age group; that disability in age groups under 25 is largely due to acute conditions, although rheumatic fever and heart disease, tuberculosis, and psychosis are important; that the chronic diseases become steadily more important as causes of disability as age increases, with disability due to "heart disease except rheumatic" becoming progressively more common. The five most prevalent or most frequently occurring chronic diseases at a given time in the Baltimore study were, in descending order, arthritis, heart disease except rheumatic, rheumatic fever and rheumatic heart, hypertension, and psychoneurosis.

The over-all rate of individuals with a chronic disease was determined to be 155 per 1,000 in the Baltimore study, 177 per 1,000 in the National Health Survey, and 212 per 1,000 exclusive of orthopedic impairments in individuals over 20 in the last Hagerstown survey⁽⁴⁾.

Cardiovascular-renal diseases

It might be well to look briefly at the cardiovascular-renal group of diseases, because it stands first both in causes of mortality and in causes of disability. The group is composed of the various forms of heart disease,

intracranial lesions of vascular origin, and nephritis, with heart disease dominating the group in importance. It is a heterogeneous group representing the end results on these three organ systems of a number of different pathologic processes arising from multiple causes acting through disease agents, the human host, the environment, or various combinations of the three. Hypertension, and arteriosclerosis are by far the most important processes.

Table 1 shows that between 1900 and 1948 the annual mortality rate for the cardiovascular-renal group rose from 303 to 466 per 100,000, while the proportion of deaths from all causes rose from about one-fifth to almost one-half. Heart disease alone in 1948, in first place in causes of mortality with a rate of 323 per 100,000, accounted for almost one-third of the deaths from all causes. In spite of these spectacular increases, it is important to emphasize that they are due to the aging of the population and to the decline in deaths from other causes. There has been disagreement as to whether there has been an actual increase in any age group. When the group of cardiovascular-renal diseases is considered as a whole, a grouping which tends to remove the bias caused by changes in classification, medical certification and medical knowledge, one recent study⁽⁵⁾ concluded that for persons over 35 years of age the basic risk of dying is neither rising nor falling. On the other hand, these same investigators concluded from careful study of the data for the period 1920-1947 that, in contrast to the downward trend for other race-sex groups, mortality from this group of diseases among white males has increased in every decade from age 35 to 64, mainly because of diseases of the heart.

The Prevention of Chronic Illness

When one considers the possibility of preventing the occurrence or progression of chronic diseases, one is apt to think of the so-called degenerative diseases and to feel that relatively little can be accomplished.

It is important to realize that this is not true. Seegal⁽⁶⁾ has classified chronic diseases as largely controllable (17), partially controllable (27), and largely uncontrollable (7). As largely controllable he lists diabetes mellitus, pernicious anemia, syphilis, hyperthyroidism, myxedema, hyperparathyroidism, sprue, alcoholic neuritis, pellagra, beri-

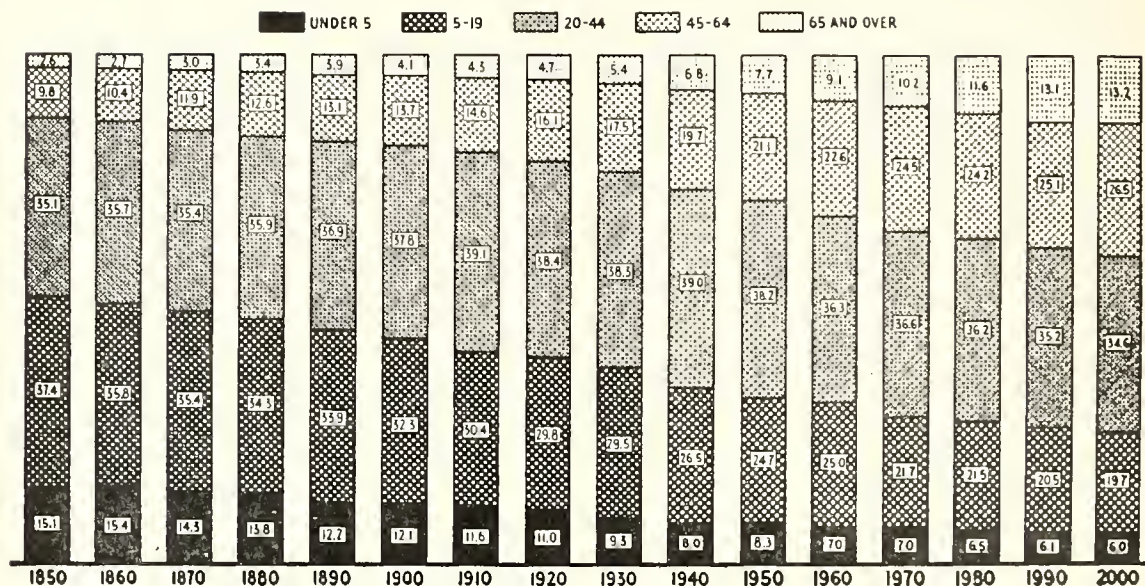


Fig. 1. Percent distribution of total population by age; United States 1850 to 2090 (1850 to 1940 from United States census enumerations; 1950 to 2090 from estimates by the Bureau of Census, 1947.) (From Dublin, L. L., Lokka, A. J., and Spiegelman, M.: *Length of Life*, rev. ed., New York, The Ronald Press Co., 1949).

beri, scurvy, rickets, hookworm, infestation, malaria, amebiasis, thrombocytopenic purpura, and familial hemolytic jaundice. Omitting the list of partially controllable diseases because of its length, the largely uncontrollable group is found to include certain congenital defects, certain neurologic diseases, certain psychoses, certain neoplasms, chronic glomerular nephritis, hypertension, and arteriosclerosis. Admitting the importance of the conditions in this last group, nevertheless the accomplishments in the first two groups are real indeed.

Levels of prevention

In considering the prevention of chronic illness, it is important to emphasize that disease is a dynamic process and that all the agent factors, all the characteristics of the human host, and all the environmental factors involved in the process of disease must be taken into account. One must know the natural history of disease in order to undertake prevention with the greatest hope of success. In a forthcoming textbook on preventive medicine⁽⁷⁾, the concept of prevention of disease and disability has been combined with positive therapeutic effects by considering five levels of prevention. Applied to chronic disease, these levels may be defined as follows:

1. *Health promotion.* Measures serving to promote the general health and well-being of the population without being specifically directed at a specific disease belong on this level. Such measures as health education and improved nutrition, housing, and working conditions have been unquestionably important in reducing the tuberculosis rate. Improved nutrition due to education, better economic conditions, and better facilities for distributing food have made pellagra, once common in parts of the South, relatively rare. Reduction in the incidence of syphilis, becoming evident even in the last century in the Western world, has been attributed to improved standards of living⁽⁸⁾.

2. *Specific prevention.* This level involves the use of the term in the strictest sense, as preventing the onset of disease by specific measures, and one may name important examples. Most authorities now believe that in special situations BCG vaccine may be used to decrease the occurrence of tuberculosis. Occupational cancer has been prevented in certain industries by eliminating or decreasing exposure to carcinogenic agents. While there is still difference of opinion, many now believe that early antibiotic treatment of streptococcal infections decreases rheumatic fever and glomerulonephritis⁽⁹⁾. Penicillin may be used at the time of dental

extractions in rheumatic patients to ward off subacute bacterial endocarditis. Machine shields in industry prevent accidents resulting in orthopedic impairments. Recurrences of rheumatic fever in rheumatic patients—so important in prognosis—may be prevented by prophylactic sulfonamide or penicillin therapy.

3. *Early recognition and prompt treatment.* When the onset of disease cannot or has not been prevented, this is an important level in the prevention of disability. Techniques such as multiphasic screening (now under trial) and the older one of periodic health examinations may facilitate early diagnosis. Early treatment is important in all of Seegal's group of controllable and partially controllable diseases. In the important cardiovascular-renal group, secondary hypertension may be combatted by the treatment of pyelonephritis, removal of pheochromocytomas, and so forth; selected cases of essential hypertension may be treated with some success with psychotherapy, relief of associated obesity, sympathectomy, veratrum viride, and so forth.

4. *Prevention of disability.* Even after delayed diagnosis, much may be accomplished in preventing progression of disease and disability in Seegal's group of controllable diseases. Control of diabetes mellitus is an example of what can be accomplished on levels 3 and 4: the life expectancy of the 50 year old diabetic has almost doubled since 1913, and the life expectancy of younger diabetic patients has increased even more.

5. *Rehabilitation.* Long after irreversible changes in form and function have occurred, proper techniques may do much to relieve disability. Rusk and others have emphasized this fact in recent years in the management of such conditions as arthritis and hemiplegia.

We need more knowledge of the natural history of hypertension; we lack adequate control series to evaluate present methods of treatment. A possible clue to an important mechanism in arteriosclerosis is being investigated with work on the importance of different types of blood cholesterol⁽¹⁰⁾.

Increasingly the importance of proper facilities for caring for patients with chronic disease is realized. Levels of care may be enumerated as (1) homes, (2) home medical care (Montefiore plan), (3) homes for aged,

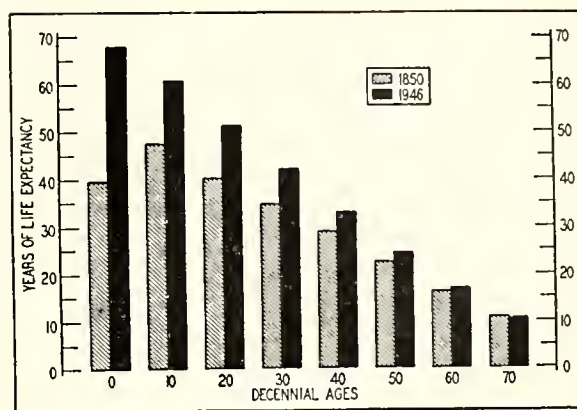


Fig. 2. Years of life expectancy at decennial ages, 1850 and 1946. (From Shock, N. W.: *Trends in Gerontology*. Stanford, Stanford University Press, 1951).

(4) convalescent homes, (5) nursing homes and (6) chronic disease hospitals.

Problems of Our Aging Population

In round numbers the population of the United States has doubled in the past 50 years; the number of individuals who are 65 years or older has quadrupled. Figure 1⁽¹¹⁾ shows the changes that have occurred and that are projected in the age distribution of the population of the United States. The increase in the proportion of older people has resulted mainly from changes at both ends of the life span. The population under 5 has decreased from 15.1 per cent in 1850 to 8 per cent in 1940; the population over 65 has increased from 2.6 per cent in 1850 to 6.8 per cent in 1940. Estimates in this diagram indicate that in the year 2000 only 6 per cent of the population will be under 5 (two-fifths the figure for 1850), while 13.2 per cent will be 65 and over (five times the proportion in 1850).

Figure 2 from Shock⁽¹²⁾ (based on Dublin's data), shows the life expectancy of the white population of the United States at decennial ages from 1850 to 1946. Gains in life expectancy have come in decreasing order in infancy, childhood, and early adult life, while the expectancy of individuals at 60 years of age and over has changed little. Major factors have clearly been the decline in infant mortality, the decline in deaths from acute communicable disease, the falling birth rate, and the decrease in immigration.

The geographic and sex distribution of the older population⁽¹³⁾ is of interest. The highest

proportion of individuals aged 65 and over is in New England, the West North Central area, and on the Pacific Coast. The older group is preponderantly female: for every 90 men there are 100 women over 65. Another important socio-economic difference between the sexes is that two thirds of the men but only one half of the women have living spouses.

Classification of problems due to aging

Health problems due to the aging process may be divided into three classes: (1) those due to the aging process itself; (2) those due to associated chronic diseases; (3) those due to psychologic problems associated with socio-economic difficulties. The trouble with understanding the importance of health problems associated with the aging process itself is our lack of knowledge regarding its exact nature. Conflicting points of view have been stated by Frank⁽¹⁴⁾ to be, on the one hand, the belief that the aging process is simply involutionary changes in cells and tissues due to the passage of time and, on the other, the belief that the changes are due to infections, toxins, nutritional disturbances, and the like.

The importance of chronic diseases in old age is much easier to understand. Host factors connected with the aging process result in a greatly increased incidence of long term illnesses associated with (1) circulatory impairments, (2) metabolic dysfunctions, (3) the arthritides, (4) neoplasms. While chronic disease is by no means confined to old age, the proportion is much higher in this group, with the one third of the population over 45 bearing one-half the chronic disease burden. Table 3 from National Health Survey data⁽¹⁾ indicates the progressive increase in chronic disease and disability, amounting to invalidism with advancing age.

The psychologic problems so important in disability in old age stem in considerable part from economic insecurity and other socio-economic problems. Employment has become a real problem. It is important in preserving the independence, the mental health, and the economic security of the aged. It is also important in the economy of the nation, since increasing the ratio of dependents to workers will be a drag on production⁽¹³⁾. In the 65 and older group of males, the percentage of those employed and seeking employment has dropped from 68.2 per cent in 1890 to 42.2

Age in Years	Rate per 1,000	
	Chronic Disease or Impairment (3 or more months)	Disability for Previous Year
All ages	177	11.7
Under 5	34	1.6
5-14	68	3.1
15-24	83	4.6
25-34	159	5.7
35-44	221	10.8
45-54	274	16.2
55-64	344	28.5
65-74	466	55.0
75-84	522	76.1
85 and over	557	101.0

Source: Britten, R. H., and Collins, S. D.: The National Health Survey⁽¹⁾.

per cent in 1940⁽¹²⁾. Studies have also shown the mean income of individuals over 65 with a cash income to be only one-third that of the 35-44 age group. The decrease in employment of older individuals has been due to increasing urbanization and industrialization, the increasing number of older people, the decrease in self-employment, and to voluntary and compulsory retirement plans⁽¹⁵⁾.

Housing, recreational, and educational facilities are key factors in the health of older individuals. Unsatisfactory accommodations and enforced dependency create disability through poor mental health. Figure 3, from Shock⁽¹²⁾, shows the percentage of older people in households and in institutions. The fact that only 5 per cent were living in institutions in 1940 is encouraging, but the fact that 18 per cent of the male and 30 per cent of the female population were living with children or relatives indicates the possibility of enforced dependency.

Minimizing Disability From the Aging Process

Monroe⁽¹⁶⁾ has stressed the fact that most older people are normal and have sufficient life expectancy to justify long range plans, that much disability is due to "unfitness" which can be combatted, that economic problems are at the center of the difficulties, and that programs must be designed to preserve the older person's individuality.

In considering the levels of prevention, one finds that on level 1 any general measures that restrict chronic disease will help prevent disability from the aging process. On level 2, specific measures to combat chronic disease have been discussed; promotion of employment and proper recreational and even educational facilities are important. On levels 3

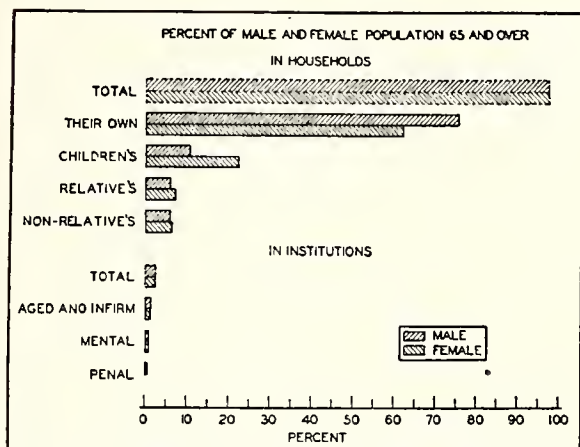


Fig. 3. Percent of male and female population 65 years of age and over in households and institutions. Data from the Sixteenth Census, 1940 Population, vol. 4, part 1, tables 11 and 12; and Special Report on Institutional Population, table 4, Washington, D. C., Government Printing Office, 1948. (Chart reproduced from Shock, N. W.: Trends in Gerontology, Stanford, Stanford University Press, 1951).

and 4, geriatric medicine becomes important; periodic health examinations and other types of screening examinations will be important in detecting chronic disease in this group where prevalence is high. Level 5, or rehabilitation, is important because of the prevalence of chronic disease; the fact that at 65 life expectancy⁽²⁾ is from 12.4 to 14.4 years for white males and females should be stressed.

Proper facilities are important in warding off disability in the aged. All the types of facilities mentioned briefly for chronic diseases are important. In addition, geriatric clinics with individualized treatment of older people are needed. Fundamental needs are research on the nature of the aging process, and more knowledge of the natural history of chronic diseases.

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THE EFFECT OF ADRENAL HORMONE THERAPY ON THE COURSE OF INFECTIOUS DISEASES*

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The early clinical observations of the effect of age and sex on the course of infectious diseases foreshadowed the relation of the endocrine organs to susceptibility and resistance to infection. These clinical and experimental observations were reviewed by Perla⁽¹⁾. The adrenal cortex has been implicated in many of these reactions; however, the accumulation of definitive data was delayed until the work of Kendall made available potent preparations to test the effect of adrenal hormone overdosage. The recent widespread use of adrenocorticotrophic hormone (ACTH) and cortisone has provided an opportunity to observe the effect of hormone overdosage on the course of infectious diseases in man. This summary represents a review of some pertinent experimental material and a presentation of clinical experiences with these agents.

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The Effect of the Adrenal Hormones on Host-Parasite Reaction

The state of resistance and the clinical manifestations of infectious diseases are a reflection of the inter-reaction of parasite and host cell. Bacteria produce disease by their toxins, by the sensitization of the host, and probably by the alteration in the host's nutrition. The course of the disease as well as the symptomatology is dependent on the intensity of the host response. This response is a complex reaction of which presently known components include combinations of the following: cell migration, phagocytosis, alteration in cell metabolism, death of cells, the institution of a vascular response, and the production of antibodies to the parasites. The general clinical manifestations of fever, pain, malaise, and the inflammatory reactions are reflections of the cellular metabolic changes induced in the host by the parasite.

In situations of stress, including infections, the adrenal hormones, like all other hormones, influence only the degree of reaction of the host cells: they do not initiate, abolish, or qualitatively alter the character of the process. Considerable evidence has been accumulated to indicate that the adrenal hormones may condition the reaction of a cell to a bacterial exotoxin. Atlas and co-workers⁽²⁾ have reported that cortisone alters the response to diphtheria toxin by delaying death, although the final death rate was not decreased. The febrile response to bacterial endotoxins is reduced by the administration of adrenal hormones⁽³⁾. The reaction produced by bacterial polysaccharide (Shwartzman phenomenon) is inhibited by cortisone⁽⁴⁾, but it should be mentioned that Thomas⁽⁵⁾ has found that, under certain conditions, the toxin-induced cell damage may be enhanced by cortisone.

Inhibition of the inflammatory response

There is a profound inhibition of the inflammatory response after adrenal hormone overdosage⁽⁶⁾, with few cells migrating into the injured area and a decreased vascular reaction. Consequently, there is a marked diminution in the clinical manifestations of heat, redness and pain, as well as decreased systemic reaction on the part of the host. This alteration in inflammation is seen only in the presence of overdosage. It is interesting that the converse is not true; adrenal insufficiency does not alter an inflammatory response.

Effect on phagocytic cell activity

The activity of phagocytic cells is also influenced by the adrenal hormones. After removal of the pituitary or adrenal gland, marked diminution in phagocytosis by polymorphonuclear leukocytes and endothelial cells has been observed⁽⁷⁾. A similar reduction in leukocyte phagocytic activity has been noted after adrenal hormone overdosage⁽⁸⁾. However, unpublished data from our laboratory indicate that endothelial phagocytosis remains unaffected by adrenal hormone overdosage⁽⁹⁾.

Metabolic alterations

Concurrent with these morphologic processes, the adrenal hormones produce marked cellular metabolic alterations. Studies, as yet unreported, have revealed that there is a decreased aerobic production of lactic acid by cells treated *in vitro* with cortisone and hydrocortisone, together with a diminution in response to injury⁽¹⁰⁾. Overdosage of the hormone may cause a diminished production of antibodies in animals; however, this has not been shown with the doses of hormone used therapeutically in man⁽¹¹⁾. Table 1 summarizes the effects of adrenal hormone on the mechanisms of resistance.

Adverse Effects of Hormones in Infections

Keeping in mind the effects of adrenal hormones on the host-parasite relationship, it is not surprising that there have been a series of reports on the adverse effect of cortisone and ACTH on the course of experimental infections. It has been shown that the rate of multiplication of viruses in cells may be increased by the treatment of the host with adrenal hormones⁽¹²⁾. Thomas and co-workers⁽¹³⁾, M. Cummings and Bloom⁽¹⁴⁾, Thompsett and co-workers⁽¹⁵⁾, and Glaser⁽¹⁶⁾ noted deleterious effects of these hormones on the incidence and course of experimental infections.

These observations may be confirmed at the bedside. There have been a series of reports suggesting increased susceptibility and decreased resistance to infections among patients treated with ACTH or cortisone⁽¹⁷⁾. In addition, suppression of the symptoms of infection has been clearly demonstrated^(17,18). Of more than 400 patients at Duke Hospital treated with ACTH or cortisone, 11 listed in table I (Cases 1 and 2 are reported in more

Table 1
The Effect of the Adrenal Pituitary Axis on Host-Parasite Reaction

	<i>Resistance to Toxin</i>	<i>Cell Migration</i>	<i>Phagocytosis by Leukocytes</i>	<i>Phagocytosis by Endothelium</i>	<i>Inflammation</i>	<i>Antibodies</i>
Adrenal hormone overdosage	Normal to low	Normal to low	Low	Increased early; normal later	Decreased	Normal to decreased
Adrenal hormone deficiency	Decreased	Normal	Low	Low	Normal	Normal

detail and will be discussed later) had courses complicated by infections.

Scrutiny of the table reveals several features worthy of comment. First, it is interesting that of this group of 12 patients, 4 were thought to have disseminated lupus erythematosus. This incidence far exceeds that of acute disseminated lupus erythematosus in the total series, and suggests that these patients are relatively more susceptible than the large heterogeneous group. It is notable as well that suppurative infections developed in 8 of these patients, and of these infections, 4 occurred at the portals of entry created by diagnostic or therapeutic manipulations. No specific time following the institution of ACTH therapy was required for the appearance of the infection, since these complications appeared at intervals varying from the fourth day to the tenth month.

Alterations in the host response were particularly marked in 4 patients (Cases 1 and 2 reported in detail), in whom there was little or no febrile response to systemic infection.

Illustrative Cases

Case 1

A 17 year old girl was first seen six years ago at the age of 11, complaining of abdominal pain suggestive of acute appendicitis. At laparotomy, only enlarged mesenteric lymph nodes were found.

The patient was again admitted on June 26, 1951, because of bitemporal headache of four months' duration. She was found to have a generalized lymphadenopathy, hepatomegaly, and splenomegaly. Other abnormalities noted were a normochromic, normocytic anemia, and minimal proteinuria. Histologic examination of a lymph node revealed reactive lymphadenitis. The patient was discharged, but shortly afterwards experienced increased weakness, malaise, arthralgia involving the wrists, elbows, knees and small joints of the fingers, and epistaxis.

Two weeks before her third admission there appeared superficial scaling lesions over the skin of the neck, mouth, and chin, as well as on the buccal mucosa, which were diagnosed as impetigo. A diffuse erythema appeared in a "butterfly" distribution over the face, and one week prior to admission the patient was found to have intermittent fever up to 102 F., associated with an 8-pound weight loss. Physical findings at the time of the third admission on August 8, 1951, were essentially unchanged from those of previous admissions, except for a low grade fever and erythematous maculopapular non-pruritic eruption over the nose and molar eminences. There

were several discrete superficially ulcerated areas measuring 1 to 2 mm. over the buccal mucosa and the hard palate, and several brown macules over the neck.

It seemed clear that the patient had disseminated lupus erythematosus, and this diagnosis was supported by the demonstration of "L.E. cells" in the patient's peripheral blood. Intravenous ACTH therapy (20 units in 5 per cent glucose over a 12 to 18 hour period) was begun on the second hospital day. The patient responded well to this regimen, with the loss of all symptoms except a mild arthralgia. To facilitate intravenous infusions, a polyethylene catheter was inserted in the right antecubital vein. However, on the ninth hospital day, a phlebitis developed in this vessel, and the tube was removed.

It was noted that purulent material could be expressed from the sinus persisting in the patient's right arm. Cultures of this material showed coagulase positive hemolytic *Micrococcus aureus*. Six hundred thousand units of penicillin and 2 Gm. of aureomycin per day were administered for the following six days, and 120 units of ACTH per day was given intramuscularly. Typical manifestations of a monilial infection developed on the buccal mucosa. The patient had no noteworthy complaints despite a return of fever, her temperature rising as high as 101.2 F. on the third day of therapy. Two blood cultures taken before the administration of penicillin were later reported positive for the same type of organism obtained from the sinus. Frequent blood cultures taken subsequently were all sterile. Her temperature returned to normal and she remained essentially afebrile for the remainder of her stay in the hospital.

On the thirteenth hospital day, mild arthralgia associated with moderate swelling was noticed in the left elbow, but limitation of motion was minimal. On aspiration of the joint, cloudy fluid was obtained which again revealed hemolytic *Micrococcus aureus*. Antibiotic therapy including 2 Gm. of terramycin and 2,000,000 units of penicillin per day was reinstituted. By the twenty-fifth hospital day, the patient's left elbow joint no longer showed signs of infection, and there was a free range of motion.

The patient was discharged considerably improved on the thirty-third hospital day on maintenance therapy consisting of 75 mg. of cortisone per day. She did well for two weeks, then returned to the clinic complaining of sharp pains in her left hip. On readmission to the hospital, films of the pelvis showed areas of destruction in both femoral heads. It was thought at this time that these were areas of osteomyelitis. Follow-up studies show that the lesions have persisted and progressed without constitutional symptoms, and it is thought that they may represent some form of aseptic necrosis. The patient has continued on cortisone therapy up to the time of writing without evidence of smoldering or frank infection.

Comment: Observers were impressed by (1) the unusual portal of entry and dissemination of the complicating infection despite

Table 2
Infectious Complications During Adrenal Hormone Therapy

Age of Patient (years)	Diagnosis	Therapy	Complication	Therapy* of Complication	Result
17	ADLE†	ACTH 20 units i.v.	Suppurative phlebitis following use of polyethylene i.v. catheter on 16th day of therapy. Blood culture positive for <i>M. aureus</i>	Penicillin 2,000,000 units Aureomycin 2 mg. Terramycin 2 Gm.	Suppurative arthritis, osteomyelitis femora
21	ADLE	ACTH 20 units i.v., later 80 units i.m.	Suppurative infection at site of i.v. infusion on 27th day of therapy, 20 days after last i.v. infusion given	Incision and drainage. Penicillin 100,000 q.d.	Uneventful
45	ADLE	ACTH 20 units i.v., Cortisone 100 mg.	Suppurative abscess following lymph node biopsy	Penicillin 300,000 units	Uneventful
47	? ADLE	ACTH 20 units i.v., ACTH 120 units i.m.	Bacterial meningitis on 26th day of therapy	Penicillin 2,700,000 units Streptomycin 1-2 Gm. Terramycin 2 Gm.	Expired in 1 week
67	? Periarthritis nodosa	ACTH 20 units i.v., Cortisone 150 mg.	Pelvic abscess due to ? perforated diverticulum on 43rd day of therapy	Drainage. Cortisone discontinued. Penicillin 1,200,000 units. Streptomycin 2 Gm. Gantrisin 2 Gm.	Poor healing sinus and abdominovaginal fistula for 3 months
50	Rheumatoid arthritis	ACTH 100 units i.m.	Pneumonia, RUL on 20th day of therapy	Penicillin 800,000 units	Sanatorial care
48	Rheumatoid arthritis	ACTH 100 units i.m., Cortisone 50-200 mg.	Laryngeal and pulmonary tuberculosis 10th month of therapy	Streptomycin 2 Gm., PAS 12 Gm. Cortisone discontinued one month previously	Sanatorial care
2	Nephrotic syndrome	ACTH 10 units q. 8h.	Acute suppurative peritonitis 4th day of ACTH therapy	Penicillin 800,000 units q.d. Streptomycin 1 Gm. q.d. Paracentesis. Discontinued ACTH Local saline compresses	Uneventful recovery; diuresis Prompt healing
56	Bronchogenic carcinoma	ACTH 20 units i.v., Cortisone 50 mg. Radiation to right chest	Shortly after cortisone discontinued abscess of buttocks appeared at site of i.m. injections given 6 days previously	Penicillin 1,200,000 units. Streptomycin 2 Gm. Discontinued ACTH	Expired 2 weeks later
55	Bronchogenic carcinoma	ACTH 20 units i.m. Nitrogen mustard, variable doses	Pneumonia, LUL, on 4th day of ACTH therapy	Penicillin 300,000 units. Incision and drainage	Drained until patient expired 3 weeks later
47	Lymphosarcoma	ACTH 100 units i.m.	Peri-rectal abscess on 13th day of therapy		

*All dosages listed are q.d.

†ADLE—Acute disseminated lupus erythematosus

vigorous antibiotic therapy and (2) the wide disparity between alarming laboratory evidences and minor clinical manifestations of disseminated and suppurative staphylococcal disease.

Case 2

The patient, a 48 year old garage mechanic, had always been in good health until the onset of polyarthritis six months previously. This had progressed in severity until the time of admission. The patient had had no known contacts with tuberculous individuals, but had had a hacking cough productive of one tablespoonful of brown sputum per day for four years. On admission to the hospital, he was found to have typical clinical and laboratory findings of active rheumatoid arthritis, including a low grade fever. Roentgen examination of the chest was within normal limits. Following preliminary studies, the patient was placed on Wilson's Corticotropin therapy, initially 10 mg. given subcutaneously every six hours and followed later by a reduction in dosage.

The patient's response to therapy was definite, the low grade fever was obliterated, and there was both subjective and objective improvement in joint function. However, at no time did he become completely asymptomatic. His course was complicated by episodes of metabolic alkalosis and associated hypertension, with blood pressure readings as high as 200 systolic, 130 diastolic. The alkalosis was successfully combatted with intramuscular testosterone propionate, 100 mg. per day⁽¹⁹⁾, potassium chloride, 6 Gm. per day, and reduction of ACTH dosage to 20 mg. per day.

When ACTH dosage was further reduced preparatory to its discontinuance, the patient suddenly spiked fever to 39.4 C. This was associated with a recurrence of all joint symptoms, and basal pulmonary rales were found on examination of the chest. A chest roentgenogram taken at this time showed widening in the area of the upper mediastinum, in contrast to three previous chest films which had been read as normal. ACTH therapy was again increased and, in a chest film taken two days later, the upper mediasternal shadow was no longer unduly prominent. The patient again responded to ACTH therapy with a subsidence of most of his arthritic symptoms and complete disappearance of his fever. The ACTH was again withdrawn and aspirin substituted, a moderate return of symptoms occurred, and he was discharged on the nineteenth hospital day.

He reappeared in the outpatient clinic after two months in complete relapse of his rheumatoid arthritis. At this time cortisone therapy was begun, initially consisting of 200 mg. per day with a gradual reduction of the dose to 75 mg. per day. The patient's symptoms again responded moderately well to this therapy, and in the following month he had little difficulty with his arthritis, unless his dose of cortisone was reduced below 75 mg. per day.

Nine months after the first admission, the patient reappeared in the clinic and complained of hoarseness and cough which had been present over a two week period. A roentgenogram of the chest showed no abnormalities. Because of progressive hoarseness, he was examined by laryngoscope and the cords were found to be somewhat reddened.

On one of the clinic visits, in addition to his hoarseness and his cough, the patient was found to have transient rhonchi over the left lower lobe. One year after the hospitalization, because of the questionable benefit accruing from hormonal therapy, the cortisone was discontinued. This was followed by an increase in joint symptoms and a rise in

temperature to 101 F., but the patient became relatively comfortable on increased aspirin therapy. Three months after the discontinuance of therapy, the patient was again examined by laryngoscope, a biopsy of a vocal cord was done, and histologic examination of the tissue revealed the presence of a granulomatous inflammation with giant cells of the Langhans type. Special stains showed no acid-fast micro-organisms or fungi. The patient was recalled to the hospital. On physical examination, no abnormalities were noted in the lungs, but roentgenograms of the chest revealed a bilateral coarse mottling throughout both lung fields, particularly dense in the apices. The roentgenologic impression was that the changes indicated a generalized pulmonary parenchymal inflammatory process. The patient's tuberculin was 4 plus at the dilution of 1:100. Acid-fast stains of sputum revealed many typical bacteria.

Comment: Laryngeal and disseminated pulmonary tuberculosis developed in this patient during protracted treatment with ACTH and cortisone. It is unfortunate that a chest roentgenogram was not again obtained at the time of discontinuance of cortisone therapy one month before the pulmonary lesions were discovered. There is experimental evidence that tuberculous lesions are held in check during cortisone therapy and dissemination occurs after administration of the hormone is discontinued⁽²⁰⁾. It is conceivable that a similar sequence of events occurred in this patient.

Thus, these experiences, together with those outlined in table 2, although uncontrolled and without statistical validity, have led to the definite clinical impression that, in some patients, ACTH or cortisone administration is instrumental in provoking serious infections in terms of both decreased resistance and delayed recognition.

With the use of adrenal hormones in the treatment of non-infectious diseases, it becomes important to consider the constant dangers that accompany their use. The patient should be carefully evaluated to rule out latent infectious processes which may be adversely affected by therapy. If the possibility of activation is present, adequate prophylactic chemotherapy should be instituted with the hormone therapy. Biopsy sites as well as hypodermoclysis may act as foci for the entrance of a pathogen. Chemotherapy and prolonged observation in the case of biopsies are necessary. The patient must always be on the alert for infections; the usual clinical warnings will not be present. The complication will develop insidiously, fever will be minimal, localizing signs will be absent, and the

leukocytosis accompanying therapy will mask the leukocytosis relied upon to indicate infection.

Beneficial Adrenal Hormone Therapy in Infections

In striking contrast to these complications of clinical administration, there are reports^(17,18a,b) of apparent benefit of short term ACTH or cortisone therapy in combating the toxic manifestations of severe infections. An illustrative case is presented.

Case 3

The patient, a 22 year old Negro married woman, was apparently in good health until two days prior to her admission, when a right pleuritic pain, non-productive cough, and fever without chills developed. The day before admission, she received one injection of penicillin and prescribed yellow capsules (? aureomycin), to be taken every four hours. The patient noted the onset of dyspnea the night before admission, and this progressed in severity until she was seen in the hospital. At the time of admission, she was coughing and producing a rather foamy sputum without the appearance of gross blood. There was no past or family history of allergic disease.

Physical examination revealed the temperature to be 38.9 C., the pulse 140, respiration 48, and blood pressure 110 systolic, 60 diastolic. The patient was acutely ill with extreme dyspnea and obvious splinting of the right chest. The mucuous membranes were somewhat pale, and the nail beds were definitely cyanotic. It was thought that the trachea was deviated slightly to the right. There was dullness to percussion at the right base posteriorly, and an area of bronchial breathing was heard over the right middle lobe. Fine rales were heard in all lung fields.

Accessory clinical findings revealed a normochromic normocytic anemia with a hemoglobin of 10 Gm., a white blood cell count of 26,750, with a shift to the left. Urinalysis revealed only a heavy trace of protein. A tuberculin skin test (OT 1:1,000) was negative. Examination of the sputum showed gram-positive diplococci which were subsequently identified as pneumococci, type 1.

Although the patient was given penicillin, 100,000 units every 3 hours, and terramycin, 1 Gm. every 4 hours, her clinical course steadily worsened during the first hospital day until that evening when the temperature was 41.1 C. despite constant administration of alcohol-ice water sponges. Her blood pressure became unobtainable and her pulse could not be felt below the femoral or in the radial vessels. Cyanosis was not influenced by oxygen therapy, and because of the seriousness of her state she was given penicillin intravenously followed by 60 mg. of Wilson's ACTH over an eight hour period.

Three hours after the ACTH was given, her temperature dropped to approximately normal levels, where it remained during the rest of her hospital stay. The pulse remained rapid and she had rapid respirations of about 40 per minute. Chest roentgenograms, which had originally revealed evidence of lobar consolidation in the right middle lobe and diffuse bronchopneumonia in the remaining lung areas, showed considerable clearing in approximately 48 hours. Following the intravenous injection of ACTH, she was given 100 mg. of cortisone per day orally for two days. Marked eosinophilia developed, rising to a count of 33 per cent, with a total white cell count of 19,560. A skin test and a muscle biopsy were done, since it was thought that

trichinosis could be an etiologic factor. Pathologic examination of the specimen revealed only normal muscle tissue. After 15 days, a roentgenogram of the chest showed clearing of the lung fields, with only slight elevation of the right diaphragm, so the patient was discharged. The patient's blood was re-examined after one month, and a white cell count of 10,200 with 2 per cent eosinophils was found. Her anemia had remained refractory to iron therapy.

Comment

The very dramatic and perhaps life-saving improvement in the patient's course occurred shortly after the administration of ACTH. On the basis of this single case, it is impossible to determine whether this change can be ascribed to therapeutic fortitude or convenient coincidence. However, to date, three other patients have been similarly treated with apparent benefit. One is a 22 year old man with pneumococcal meningitis and chronic mastoiditis; the second, a 29 year old woman with agranulocytosis, acute leukemia and *Aerobacter aerogenes* septicemia; and the third, a 22 year old woman with subacute bacterial endocarditis due to *Streptococcus viridans*.

It is our opinion that ACTH or cortisone administration may serve an important function in the treatment of life-threatening infections if (a) a specific etiologic agent is known, (b) specific antibiotic therapy is available, and (c) chronic hormonal therapy is avoided. However, we would hesitate to use the material even under these circumstances until further clinical and laboratory data are available.

Summary

Adrenal hormone overdosage may have a place in the treatment of infectious diseases where short term diminution of host response of retardation of toxic reaction is indicated. The infectious complications of adrenal hormone therapy are a constant threat to its use in all diseases. The diminution of host response to the infectious agents is so great that the danger associated with the therapy is intensified by the delayed recognition of the complication.

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THE CLINICAL USE OF RESINS

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Since the work of Segal and his co-workers⁽¹⁾ on the effect of a polyamine formaldehyde resin in the neutralization of gastric hydrochloric acid was published in 1945, a considerable volume of literature on the experimental and clinical use of both anion and cation exchange resins has accumulated. It is the aim of this paper to evaluate the work that has been done and to draw some conclusions concerning the proper place of resins in the present day practice of medicine, pointing out particularly some of the difficulties that may be encountered and how these problems may be met.

Structure and Types of Resins

Exchange resins are synthetic polymers of compounds whose basic structure is the benzene ring, these rings being bound together by cross-links to form a molecule of exceedingly great size. This part of the structure is highly insoluble and chemically inactive, but attached to these rings are side chains which may be acid or basic in type, each capable of ionizing and exchanging its original ion for another of like charge in the surrounding medium. If the side chain is basic and when ionized liberates a negatively charged ion or anion and is hence able to receive another anion in exchange, the structure is called an anion exchange resin. In like manner, if the side chain is acid and is capable of liberating and receiving positively charged ions, or cations, the structure is called a cation exchange resin.

I shall say little about the anion exchange resins, because they have not been nearly so widely used as have the cation exchangers. Anion exchangers were first used in the treatment of peptic ulcer⁽²⁾. The consensus seems to be that they are about as effective (in adequate dosage) as any other antacids and have fewer undesirable effects than many of the others. The chloride ion of the gastric hydrochloric acid is bound to the resin in the stomach, but is liberated again in the alkaline medium of the intestines, from whence it is absorbed. There is no acid rebound following the use of this form of antacid, and

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Chronic vs. progressive disease.—Old age is the time of life when chronic disease is most common. Persistent maladies acquired in earlier years are augmented by deficits and disabilities of many kinds. But we have erred in assuming that "persistent" and "chronic" mean "progressive." As a matter of fact, few diseases grow worse from year to year.

Arthritis, for example, is universal in old age. The rheumatoid atrophic type, however, is rare; it seldom sets in after the age of 60; most of its destructive effects have been completed by that time, and its further advance is more upon the patient as a person than upon the function of his joints. Hypertrophic arthritis, the "wear and tear" type, is found in everyone. The deformities it produces tend to become more pronounced, but they are not associated with malaise, and they do not interfere with vigorous living.—Robert T. Monroe: *A New Look at Old Age*, *J. Internat. Coll. Surgeons*, 14:124 (July) 1950.

one is not likely to encounter electrolyte disturbances in its use.

Anion exchange resins have also been used with promising results in the treatment of heartburn of pregnancy⁽³⁾, and have been combined with cation exchangers to help prevent the acidosis caused by the latter in the treatment of endematous states⁽⁴⁾. Resinat is a commercially available anion exchange resin.

The cation exchangers most commonly used are those having as side chains the carboxylic and the sulfonic groups. These side chains may be present in the free acid form or may have an ammonium, potassium, or other cation present; hence the designation "acid," "ammonium" or "potassium phase." In the stomach, in the presence of hydrochloric acid, the resins in the ammonium or potassium phases are apparently converted to the acid phase and the ammonium and potassium ions made available for absorption into the blood stream. This should be kept in mind when we consider later the advantages of using combinations of resins in more than one phase.

Clinical Possibilities of Cation Exchange Resins

At this point let us consider what it is theoretically possible to accomplish in the clinical use of cation exchange resins. When administered in the acid, ammonium or sodium phase, these resins quite consistently increase the daily output of potassium in the stool⁽⁵⁾. They show a rather strong affinity for potassium, and it is possible with them to increase the daily stool content of potassium many fold. It will be readily appreciated that this is a two-edged sword—it may be either helpful or harmful. When given in the potassium cycle, resins may be used as a means of preventing the development of potassium deficiency during resin therapy. In whatever phase a resin is administered, it apparently is converted to the acid phase in the presence of gastric hydrochloric acid, thus making available for absorption any cation that was originally attached to the resin. Thus resin in the potassium phase makes available for absorption in the stomach potassium which may compensate in part or in whole for the potassium subsequently bound by the resin in the alkaline contents of the intestines and excreted in the stool.

It has been observed repeatedly that the use of cation exchange resins may enhance

the effect of mercurial diuretics, but the exact mechanisms of this action is not clearly understood. It is probably related to the fact that they tend to produce two conditions commonly recognized as conducive to good mercurial diuresis — namely, an adequate plasma chloride level and a diminished plasma bicarbonate level.

Resins are also capable of increasing the quantity of calcium and magnesium excreted in the stool, but I know of no clinical circumstances in which this function has been used therapeutically.

By far the most useful characteristic of resins in clinical medicine is their ability to increase the amount of sodium excreted from the body in the stool. This action may be limited to preventing the absorption of part or all of the sodium taken in the diet or may go farther and carry out in the stool a quantity of sodium greater than that ingested, thereby helping to eliminate sodium which has accumulated in the body, and in so doing help to mobilize edema fluid. In using cation exchange resins for this purpose one should keep in mind that their capacity to bind sodium is limited. Several factors bear on the question, including the dose of resin, the mesh or particle size, the pH of the surrounding medium, the concentration of sodium in the intestinal contents, and the transit time of the resin through the bowel⁽⁶⁾. With the patient on a fairly low salt diet (containing about 3 or 4 Gm. of salt daily), a daily dose of 45 Gm. can be expected to bind the sodium contained in roughly 2 or 2.5 Gm. of salt⁽⁷⁾. This, of course, will show considerable variation. One can readily infer that resins are not a complete substitute for low salt diets, but when used may permit the use of enough salt to make the diet more palatable.

Therapeutic Uses

Resins may be of value in the management of cases of lower nephron syndrome with excessive accumulation of potassium in the body. In such cases one would, of course, avoid using resin in the potassium phase, since there is no reason to replace any of the potassium removed by the resins. In the treatment of this condition the resin may be given orally or rectally. The rectal route has been quite effective in some cases, but since the results are highly variable, the oral route is to be preferred⁽⁸⁾.

The alkalosis, sodium retention and potassium depletion produced by ACTH and cortisone therapy may be combatted by the use of cation exchange resins in the potassium and ammonium phases. In this instance, probably 40 to 50 per cent of the resins administered should be in the potassium phase.

The use of resins in the treatment of hypertension has not been investigated extensively, but promising results have been achieved in a few cases.⁽⁹⁾ Obviously, the resin will not permit an unlimited amount of salt in the diet, but it may make possible a more palatable diet. In this connection, I would like to say, however, that except in cases of low salt syndrome, I am convinced that toleration of the rice diet or other extremely low salt diets is primarily a psychological problem. I have encountered few patients who could not tolerate such diets, if they approached the problem in the right frame of mind and followed the diet closely for at least one month. If, however, the patient's initial response is "I know I can't eat that stuff," the chances are he will prove himself right.

It has been suggested that patients with Addison's disease may be helped by the administration of cation exchange resins in the sodium phase.⁽¹⁰⁾ By this method one could administer sodium and remove potassium. As yet I do not know of any case in which this has been tried.

By far the greatest use of exchange resins has been made in the treatment of edema and ascites. The results in this group have been encouraging but not uniformly good. Resins are by no means a substitute for the conventional treatment, and probably should be held in reserve for use in those cases which do not respond satisfactorily to the usual treatment. In some cases resins will produce diuresis when mercurials have failed, and in others they may restore responsiveness to mercurials. In patients who find a low salt diet a great problem psychologically or economically, the addition of resins to the regimen may make it safe to permit a diet sufficiently liberal in salt to insure more consistent cooperation on the part of the patient. Patients with congestive heart failure have given the most satisfactory response to resins employed for these reasons,⁽¹¹⁾ but some good results have also been reported in patients with cirrhosis and ascitis,⁽¹²⁾ nephrosis,⁽¹³⁾

and pregnancy with toxemia or fluid retention⁽¹⁴⁾.

Problems and Complications

Among the problems encountered in the use of exchange resins, palatability is a considerable one, and numerous vehicles have been tried. The resin may be suspended in plain water, but is probably somewhat easier to take in fruit juice or flavored cornstarch solution. It has been suggested that since ion exchange and uptake is increased when ethanol is present in the substrate, an elixir of the resin may be desirable⁽¹⁰⁾. None of these vehicles, however, completely eliminates the gritty, sand-like consistency or the rather large bulk of the resin.

Nausea and vomiting are occasionally encountered and may be of such degree as to completely prohibit the use of resins. There seems to be no great difference between the different resins as regards the incidence of nausea and vomiting except that those administered entirely in the acid phase are much more inclined to cause gastric irritation. A single trial need not be considered final, since some patients showing an intolerance to the preparation may later be able to take it without difficulty. In general, the more liberal the diet, the better the resins are tolerated.

Constipation and, less often, diarrhea may be encountered, and a few instances of fecal impaction have been reported. The use of methylcellulose and similar materials will usually answer this problem, but in some cases more strenuous measures will be required.

Attention has been called to the appearance of casts in the urine of patients receiving cation exchange resins⁽¹⁵⁾. This seems to be related to the lowering of the urinary pH and the casts quickly disappear when the treatment is discontinued. It is not felt that there is any actual renal damage associated with the production of casts.

One author describes some noticeable neurologic disturbances occurring during cation exchange therapy in patients with cirrhosis of the liver. These consisted of drowsiness, apathy, weakness, slurred speech, disorientation, inappropriate behavior, and an irregular flapping tremor which was intensified by standing. Attention was called to the fact that these disturbances occurred only in those patients receiving resin in the ammonium phase, and were similar to the symptoms

seen in impending hepatic coma. Upon discontinuing the treatment the symptoms completely disappeared in all cases.

It has been known for several years that in certain patients with kidney disease the administration of a diet extremely low in salt may lead to grave disturbance which seem to be due to excessive depletion of the body sodium⁽¹⁶⁾. There is a marked decrease in urine formation and a rise in the nonprotein nitrogen. For a long time it was felt that this situation was due to diminished glomerular filtration secondary to the disturbance of the blood electrolytes, but there is experimental evidence to indicate that the hypofiltration is due to intrarenal vasoconstriction, resulting in decreased renal flow. Accompanying the decreasing volume of urine and rising nonprotein nitrogen are abnormally low levels of sodium and chlorides in the blood, a steady gain in weight, and complaints of drowsiness, weakness, anorexia, nausea and sometimes vomiting, and occasionally abdominal and muscular cramps. The recognition and appropriate treatment of this condition may be life-saving, since the disturbance can be reversed in many cases by the slow intravenous infusion of hypertonic sodium chloride solution—5 or 6 per cent being the concentration of choice. This can be done with relative safety even in patients with severe congestive heart failure. One might be able to administer the salt by mouth, but the amount required will sometimes cause gastrointestinal disturbances and may have an erratic rate of absorption. Regardless of the route of administration, the amount of salt prescribed should be carefully calculated, since overshooting the mark is very hazardous. One should, of course, be guided by serum chloride and plasma carbon dioxide.

Resins have an even greater affinity for potassium than for sodium and when administered in the acid or ammonium phases cation exchangers may lead to serious depletion of the potassium in the body. While the condition may be guarded against by administering part of the resin in the potassium cycle, this is not a guarantee that potassium deficiency will not develop and one must be constantly alert to the development of this condition. Muscular weakness or paralysis, nausea, and depression or absence of tendon reflexes should bring the possibility to mind. The electrocardiogram is often helpful in the diagnosis, showing low, flat T waves, de-

pressed and sagging S-T segments, and prolonged Q-T interval. This disturbance may be treated by the oral or intravenous administration of potassium chloride. The incorporation of liberal amounts of orange juice—a rich source of potassium—into the diet is a useful preventive measure.

Since potassium exerts a protective action against digitalis intoxication, the lowering of the blood potassium level which often accompanies resin therapy may permit the appearance of this complication. It has been suggested that if a patient is fully digitalized, the digitalis be discontinued for two or three days prior to starting resin therapy⁽⁷⁾.

Many patients on resin therapy will develop some degree of compensated acidosis, and if there is a considerable degree of renal damage with impairment of ammonia production, the acidosis requires clinical treatment and sometimes prohibits the further use of resins. The inclusion of a small amount of anion exchange resin in the preparation used helps to prevent acidosis by increasing the excretion of acid ions in the stool⁽¹²⁾. At least one resin product on the market contains both the anion and cation exchangers.

Precautions

In conclusion, I would like to point out certain precautions which should be taken preparatory to starting a patient on cation exchange resin therapy. The blood non-protein nitrogen should be determined, and some workers state that if it is found to be elevated, resin therapy is definitely contraindicated, since there is a strong possibility that the renal sufficiency will be aggravated. I do not personally feel that this should always rule out the use of resins but admit that one must proceed cautiously in such cases. A baseline electrocardiogram should be done for future reference in looking for hypopotassemia. The patient should be weighed daily early in the course of therapy, and should maintain a fair appetite and reasonably good urine flow. If edema is present, slight to moderate diuresis should occur within three days, followed by more marked diuresis if a mercurial is then used. If this does not occur, renal failure or low salt syndrome should be suspected. Hyperpnea, nausea and vomiting, weakness, cramps, or drowsiness should lead one to stop resin therapy, check the chloride, carbon dioxide and nonprotein nitrogen levels, and repeat the electrocardiogram. So-

dium and potassium levels should also be determined if possible.

By far the great majority of adverse effects will show up in the first 10 days of treatment if they are going to show up at all. After the first two or three weeks it is not necessary to follow the patient as closely as at first. The effect of resin continues to a considerable degree for about three days after it has been discontinued, apparently the time required for the intestinal tract to rid itself of the resin. Therefore, some practitioners favor an intermittent schedule—four days on and three days off⁽¹⁷⁾. This also affords the patient some rest from taking a none too pleasant medication.

It seems, then, that resin therapy has a place in modern therapeutics, but it should be employed only with a keen awareness of its possible undesirable effects.

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Discussion

Dr. Raymond M. Wheeler (Charlotte): Dr. Batten's comprehensive review of the use of the anion and cation exchange resins leaves no doubt that physicians have been presented with a therapeutic weapon of unusual versatility. Despite the obvious disadvantages—and in some cases the potential hazards—of the resins, the advantages are clear.

The cooperative patient can be allowed a more appetizing diet. The back-slider can be more easily and efficiently controlled. The number of mercurial injections can be sharply reduced, and, in many cases, the number of visits to the office can be appreciatively diminished.

It is true that the use of resins will probably be limited. Possibly their greatest usefulness will lie in that group of cases in which very small improvement may mean the difference between success and failure. To me, one of the most interesting aspects of this problem is Elkinton's report of his success in lowering the serum potassium concentration by the oral or rectal use of the cation exchange resins. This author's experience offers new hope in cases of anuria secondary to reversible renal lesion. Possibly a new resin which will have a higher specificity for potassium than is now available to us will be developed.

I think one word of caution regarding potassium metabolites should be injected: The fact that there is added potassium in most of the available resin preparations should not create a false sense of security. We should remember that in a low sodium diet the restriction of potassium is approximately five times greater than that of sodium. Furthermore, in instances of plasma sodium loss, potassium migrates from the cell to the extracellular fluid. Then, following mercurial or ammonium chloride diuresis, large amounts of potassium can be lost in the urine. This possibility has been suggested in longstanding cases of cardiac failure, probably progressing to the clinical picture known as the low salt syndrome.

There is still another therapeutic hazard. Nobody knows what effect these resins will have on the vitamin and amino acid contents of the diet. Physicians have reported 2 cases, I believe, of tetany in patients receiving resins, and it has been stated that there is a definite risk of generalized demineralization of bone in patients who receive these preparations over a long period of time.

Resins possess other therapeutic possibilities as yet undeveloped. For instance, what will be their role in the management of obesity and premenstrual tension? I wonder if a resin which would prevent the absorption of iron in the gastrointestinal tract could be developed. Such a resin would be very valuable in the management of hemochromatosis and polycythemia. Could these preparations be used in the management of toxemia of pregnancy and in the treatment of hypertension?

Dr. Batten's apparent lack of sympathy for the patient on the rice diet disturbed me somewhat. At the risk of incurring the wrath of the Duke group, I would not only suggest that the problem of tolerating the rice diet is largely psychologic, but I wonder if the interpretation of the therapeutic results of this diet might not also be primarily psychologic rather than metabolic or nutritional. Granted that resistance to the diet is a psychological problem, it is none the less real, and I dare say that in certain instances, the cation exchange resins will prove valuable in providing a partial solution.

EVALUATION OF METHODS OF PAIN RELIEF DURING LABOR AND DELIVERY, WITH REFERENCE TO MOTHER AND CHILD

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Progress in obstetrics is measured fundamentally by how many mothers survive the ordeal of delivery and how many infants overcome the difficulties of intrauterine life, delivery, and the neonatal period to develop normally in both mental and physical spheres. In the last few years maternal mortality has been lowered until it is close to the irreducible minimum. The maternal mortality rate at Duke Hospital in 8,770 deliveries since 1946 has been 0.09 per cent. This speaks well for the prenatal and natal care of mothers.

Reductions in infant mortality and morbidity have not kept pace with the improvements made in maternal care (table 1). Babies are being lost *in utero* and during the neonatal period in numbers which demand examination of the procedures involved in their delivery⁽¹⁾.

It is the purpose of this discussion to consider the influence of soporific and analgesic drugs on the mother and fetus during the course of labor and delivery. Too often in the past the primary concern has been the comfort of the mother, without sufficient attention to the effect of this or that medication on the baby. Yet it has been stated that the pain-relieving drug which does not increase the incidence of asphyxia neonatorum has yet to be found⁽²⁾. By careful and judicious employment of analgesic agents, it may be possible to effect important reductions in neonatal mortality and morbidity.

The harm which may be done to the fetus by drugs administered during labor is difficult to appraise. If one is contemplating the administration to the mother of a sedative which one would hesitate giving to a newborn, however, one should also pause before giving it to the mother, especially in large doses. An injection of morphine may provide

Table 1
Infant Mortality Rates
(1946-1951)

Year	Stillborn		Neonatal		Total	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
1946	43	2.9	36	2.4	79	5.4
1947	53	3.4	30	1.9	83	5.4
1948	68	4.6	29	1.9	97	6.6
1949	47	3.2	36	2.4	83	5.7
1950	65	4.4	25	1.7	90	6.2
1951	61	3.9	26	1.6	87	5.5
	337	3.8	182	2.0	519	5.8

satisfaction for the mother, but it also produces severe respiratory depression in the infant.

In the effort to reduce the trials of labor as much as possible drugs are often prescribed in doses which are greater than the patient needs or even desires. One of the duties of the obstetrician is to analyze the prospective mother carefully during the prenatal period. Her threshold to pain can be evaluated by her reaction to examinations during the period of gestation. Her history of previous deliveries or operations also may give a clue as to her tolerance of pain. Some mothers, with proper instruction, confidence in themselves, and faith in their obstetrician, can carry through labor without analgesics of any kind. The least amount of any drug which is given, the better for the baby. It is a mistake to prescribe routine medication, because no two mothers will conform to the routine. Suit the dose to the apparent need of the patient, and then err on the side of conservatism.

Analgesic Agents Employed During Labor

Of the analgesic drugs in use today, probably Demerol is favored most highly. In doses of 50 to 100 mg. (equivalent in potency to 5 to 10 mg. of morphine), Demerol is believed to provide some pain relief for the mother without unduly depressing the respiratory center of the child. However, this narcotic will depress fetal respiration almost as much as will the equivalent amount of morphine. This can be demonstrated effectively by observing the effects of the intravenous administration of Demerol.

In recent months the synthetic compound, Methadone⁽³⁾, has been recommended as an analgesic during labor. Although it is too early to be certain, evidence at hand suggests that this agent has depressed fetal respiration as much as morphine does. It is per-

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haps unwise to give any narcotic analgesic drug, except in the smallest doses, if the delivery is expected within four hours. In this way the depressant effect on the newborn can be somewhat reduced.

Scopolamine or hyoscine is an agent employed commonly during labor. It produces a cerebral sedative effect associated with drowsiness and amnesia⁽⁴⁾. In moderate doses it has little, if any, depressant effect on respiration⁽⁵⁾. Unfortunately it is not an analgesic, and may induce restlessness and irrationality in those having severe pain. Oftentimes this proves to be a complicating factor for the nurses during labor. The amnesic effect is such, however, that the mother seldom remembers the situation in the postnatal period.

A variety of barbiturates have been recommended for sedation of the mother during labor. They all relieve apprehension and produce drowsiness and amnesia to a greater or lesser degree. Two facts should be borne in mind concerning this pharmacologic group. First, these agents are primarily hypnotics and, like scopolamine, are liable to incite uncontrollable reactions during the painful episodes of labor. Secondly, when the accumulated dosage to the mother exceeds 180 mg. (3 grains), a respiratory depressant effect becomes evident, which in all probability is transmitted to the respiratory center of the fetus. Their excessive use during labor is not beneficial to the infant.

Since the primary aim during labor is to alleviate the mother's pain without deleterious results for the baby, it is obvious that none of the agents enumerated so far fulfill this dual purpose adequately. About 10 years ago the British introduced trichlorethylene as an analgesic during labor and delivery. Its use spread to Canada and more recently it has been advocated in this country. This agent is one of the most potent analgesics available today. Small portable inhalers have been devised (fig. 1) which will allow the expectant mother to inhale the vapor intermittently as required for relief of pain⁽⁷⁾. Usually, satisfactory analgesia without loss of consciousness can be obtained. If sufficient vapor to produce unconsciousness is inhaled, the mask which the mother is holding falls away from her face, and consciousness returns within 20 to 30 seconds. The psychological advantage to the mother of knowing that she herself can relieve her pain, more



Fig. 1. Duke University Inhaler for the administration of Trichlorethylene analgesia.

or less as desired, is tremendous. When used in this way as an analgesic, this drug has no harmful effects on mother or child, and in particular does not depress respiration. Furthermore, the mother is provided a degree of amnesia which reduces the memory of her ordeal to a vague, pleasant haziness. It is believed that this drug fulfills more nearly than any other the requisites of the obstetrician for both mother and child during the period of labor.

Analgesia at Time of Delivery

General anesthesia

It is at the time of delivery that the physician most strongly is torn between two desires. At the moment when pain relief is direly needed by the mother, the achievement of this end may subject the infant to hazardous risks. Certainly the dangers of asphyxia neonatorum are enhanced by any form of general anesthesia. Nitrous oxide and ethylene in and of themselves do not depress the respiratory center, but they are weak narcotic drugs which may be effective only when associated with a degree of anoxia which is dangerous to the fetus. Cyclopropane is a potent drug, and hence can be used with abundant oxygen. Its proper administration requires careful training, however, and respiratory depression of the fetus is produced with light narcosis. Ether is a most useful drug, but as we know is slowly eliminated from the blood stream. It may reduce the normal reflex activity of the baby for some time after birth, and thus obtund the stimuli

which are so necessary for adequate neonatal respiration.

It is not idle curiosity that has led doctors to try every known inhalation and intravenous drug during obstetric delivery. One may compare the situation perhaps to the many treatments available for Parkinsonism. The multiplicity of recommendations stem from the fact that no single one is entirely satisfactory. The most recent inhalation anesthesia combination to be suggested is nitrous oxide-oxygen and trichlorethylene⁽⁸⁾. The association of these drugs allows the anesthetist to provide adequate analgesia for the mother along with good oxygenation, and lessens greatly the probability of respiratory depression of the newborn infant. This technique appears to fulfill the criteria for delivery, but full approval must await the accumulation of further clinical experience.

One of the risks to the mother during delivery arises from the administration of any general anesthetic. Recently Merrill and Hingson⁽⁹⁾ have reported on 59 maternal deaths associated with vomiting and aspiration into the lungs during delivery. In the mother who has eaten after the onset of labor, this very real and preventable hazard can be avoided only by preserving the normal reflex activity of the patient's throat and larynx. This is accomplished by not employing general anesthesia.

Conduction analgesia

Pain relief during the terminal stages of labor and during delivery is being attained with greater frequency by various methods of conduction analgesia. For several years in the last decade caudal analgesia was employed widely, and in many clinics still is the technique of choice. Its drawbacks include the technical skill required in administration, the constant care which the patient must receive, and the occasional severe complications associated with its use.

Spinal analgesia

Low spinal analgesia is preferred by many obstetricians, and proves most satisfactory if careful, well practiced techniques are employed, and if there is close observation of the patient so that falls in blood pressure are treated at once. Hyperbaric or heavy solutions of Nupercaine or Pontocaine are those most frequently utilized, although procaine in a 1 per cent solution is simple to administer and seldom leads to complications if

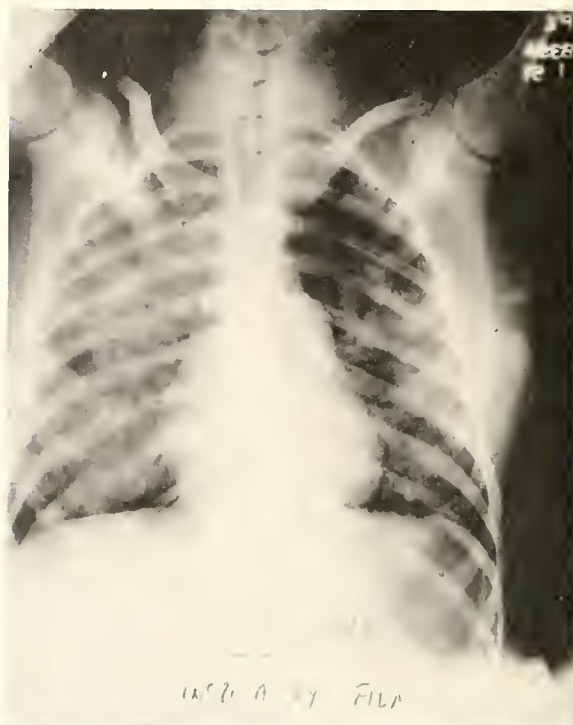


Fig. 2. Chest plate showing results of aspiration of vomitus during general anesthesia for delivery.

the total dosage is limited to 50 or 60 mg. These methods of relieving pain have a minimal effect on the fetus, provided anoxia is avoided by maintaining normal blood pressures. When employing spinal analgesia, the inherent calculated risk of permanent nerve damage to the mother must not be forgotten, and the relatively high incidence of postdelivery headache must be considered in any evaluation.

Regional pudendal block

Perhaps the least innocuous method of analgesia at the time of delivery for both mother and child is provided by a regional pudendal block. Unfortunately pain relief in this manner is not always complete, and sometimes it is necessary to resort to inhalation anesthesia⁽¹⁰⁾. In the last few years two factors have contributed to more success with this technique. The use of the local anesthetic drug Xylocaine produces a more profound block of the nerves because of its greater diffusibility through the tissues, and it is longer acting than procaine. Secondly, in patients where pain relief is not complete, satisfaction is obtained usually by the concomitant self-administration by the patient of a mixture of trichlorethylene and air. Par-

ticularly if the inhaler has been used intermittently during labor, the patient will continue with it quite happily in the delivery room and often will not feel or remember the insertion of the needles for the pudendal block. This combination of pudendal block with Xylocaine and self-administered analgesia with trichlorethylene is proving quite satisfactory.

Summary

The aim in obstetric labor and delivery is to provide relief of pain for the mother safely, without endangering thereby the well-being of the fetus (or prolonging the course of labor). Statistics indicate that there is room for improvement in the salvaging of newborn infants. There is no argument that one of the causes of anoxia, respiratory depression, or asphyxia neonatorum of the newborn is the narcotic and anesthetic drug used, and its mode of administration.

General suggestions

(1) Routine medication during the course of labor should be avoided. Each patient is a law unto herself, and many neither need nor desire repeated doses of narcotic or hypnotic drugs.

(2) Narcotic and hypnotic drugs should not be given within four hours of the expected delivery.

(3) Trichlorethylene is a potent analgesic drug which does not produce fetal respiratory depression when self-administered intermittently by the mother. Dosage of this drug can be decided by the patient according to her needs.

(4) Scopolamine is a useful adjunct during labor to produce cerebral sedation and amnesia without associated central respiratory depression.

In the terminal stages of labor

(1) The hazard to the mother of aspirating vomitus during general anesthesia must be borne in mind.

(2) The increased danger to the fetus of any type of general anesthesia should be considered.

(3) If inhalation anesthesia is elected, the combination of nitrous oxide-oxygen and trichlorethylene allows probably a wider latitude of narcosis with less danger to the baby than any other combination of drugs.

(4) Conduction analgesia properly administered offers the least hazard to the baby. Insofar as the mother is concerned, however,

it must be regarded as a procedure which entails a calculated risk.

(5) The technique which interferes least with both mother and child is regional pudendal block. The shortcomings of this method can be met safely by the intermittent self-administration by the mother of trichlorethylene vapor.

(6) Whatever means are chosen for terminal pain relief, nothing can supplant careful and practiced technique by the administrator.

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Abstract of Discussion

Dr. C. E. Flowers (Brooklyn): The people of North Carolina should be grateful to have a professor of anesthesiology who is interested in the relief of obstetric pain. For many years this has been one of our greatest needs in anesthesiology. We can be grateful also that Dr. Stephen has brought us the most valuable adjunct to obstetric anesthesia that we have had in many years.

In the past two years at our hospital in Brooklyn we have had four women to die from aspirating vomitus following the administration of ether or cyclopropane. As we all know, the motility of the stomach is greatly diminished with the onset of labor. We can never be sure that food is out of the stomach, even if the patient has been in labor for 18 to 24 hours. To administer inhalation anesthesia without intubation to any patient who has digested food two hours prior to the onset of labor is to invite disaster.

The warning against the dangers of aspiration on the delivery table cannot be sounded too often. Our only maternal death last year was a result of this calamity. It has been proved many times that digestion absolutely ceases during labor. If the patient's stomach is full of food at the onset of labor, regardless of whether six, eight, ten, or twelve hours elapse before delivery, the food is still there.

We all agree with Dr. Stephen that there is a maternal risk involved in obstetric anesthesia. Dr.

Charles Gordon has shown in the February issue of the *American Journal of Obstetrics and Gynecology* that 20 per cent of the deaths from cesarian section are due to anesthesia. It is estimated that approximately 120 patients per year die in the United States as a result of anesthetic complications occurring at the time of cesarean section.

Certainly spinal anesthesia presents many problems in obstetrics. It can be administered easily to a pregnant woman, but the increased lordosis and intradural pressure during pregnancy very easily may cause an excessive level of anesthesia and a correspondingly severe hypotension. This hypotension may not always be dangerous to the mother, but it can be directly related to asphyxia neonatorum.

Drs. Hellman and Hingson have recently shown that when the maternal systolic pressure falls 35 mm. or below, the number of infants who have delayed crying time and who need active resuscitation is twice that in the control groups. This fact is easily explained, since at a systolic pressure below 80 mm. the muscular tone of the uterus is equal to the maternal blood pressure.

Trichlorethylene has been used in our hospital in approximately 750 cases, and we have found it a most valuable adjunct to various techniques of obstetric anesthesia. The reasons are fairly simple: First, in our large clinic clientele are many who arrive with food in their stomachs and late in labor. Unfortunately, we have almost no trained anesthesiologists. We can, however, provide these women with inhalers and enable them to obtain satisfactory pain relief at the very moment of arrival on the delivery floor. Second, since Trilene is used only as an analgesic and does not promote vomiting as do ether and cyclopropane, there is no danger of aspiration of the stomach contents. Not only is Trilene helpful to those patients who arrive late in labor, but we are finding it a useful adjunct in all types of obstetric anesthesia and analgesia. Trilene will improve a poor pudendal block; it will make a partially satisfactory spinal anesthetic successful; it can make local anesthesia for cesarean section humane.

Let us remember, however, that Trilene should not be used as an anesthetic in the same way that we use cyclopropane, ether, or chloroform. I feel that it has its place as an obstetric analgesic which when combined with other methods of pain relief tends to produce a smooth and satisfactory course of labor. The important thing concerning the use of Trilene in obstetrics is not to ask more of the agent than it is capable of providing.

To me it is paradoxical that a group of anesthesiologists (in this case, Drs. Stephen, Nowill, and Martin) should recommend an analgesic agent which the patient can administer herself. This is tantamount to the obstetrician's recommending birth control. You are giving the patient something she can take herself, without all the knobs to turn and the big machines to use.

However, according to our clinical experience, an ideal combination has been discovered, and is now being promoted, to the benefit of both mother and child. The use of trichlorethylene analgesia with pudendal block for delivery, plus trichlorethylene at the same time or in combination with a little nitrous oxide, has proved of tremendous value.

There is only one point of difference we might raise with the rules or suggestions laid down by the authors. They recommend that no drug be given within four hours of delivery. This is an excellent practice to adopt with regard to premature births, but it is not so useful in ordinary, uncomplicated deliveries. Inspection of hospital records reveal that at least 30 per cent of the patients deliver within less than four hours of the time of their arrival at the hospital. This means that no multipara with an

easy, rapid labor can receive any relief. Of course, analgesia is a partial answer to this problem, but it is still strictly an analgesic. Demerol, however, not only in its original series of 1,500 patients with Schumann and Roby, but in another 600 by Schumann and myself, did not produce any profound asphyxia—that is, up to the time of delivery, not just four hours. The deciding factor, of course, was the method of delivery, and the anesthetic used at that time. You cannot fill the patient, as they tried to teach us, with Demerol, and then use narcotics or hypnotics for delivery.

If pudendal block is used, preferably with 1 per cent Xylocaine, Demerol can be given, even within four hours of delivery.

It was said that the less drug one gives, the better it is for the baby. Little mention has been made, in the literature, of precipitate labor. The pediatricians have not given nearly enough attention to it. Many a multipara with a 45-minute labor has much more extreme pain than does a primipara during 24 hours of desultory contractions, and the baby may actually suffer cerebral hemorrhage as a result of this rapid expulsion without forceps or any other instrumental interference. Two of our most severe spastics were simply premature infants precipitated in the bed at home, completely unattended. Vitamin K is not the answer, either. Had an obstetrician been present and waved so much as a single forcep blade for vectis, the blame would have fallen on him. Obviously, as the authors pointed out, every patient should be evaluated as to weight, drug tolerance, and stress tolerance. I personally believe that no physician should rely on a routine course of medication, nor on administration by his nurse or other assistant.

Those responsible for obstetric anesthesia in this country, even in well regulated hospitals, are usually trainees or graduate nurses. Are they taught bronchoscopy? Almost never. Is suction available? Only rarely.

But do not let me draw attention from the accoucheur. It is his patient and his responsibility. He is the one who is in authority, not the anesthetist or the nurse whom he instructed, or someone else who administered a drug.

A word of caution regarding the complications of saddle block, spinal, and caudal analgesia, even though there are specific indications for their use: Even with the best technique, once in a great while one encounters a drop of 40 mm. in blood pressure. When that occurs there is violent activity of the fetus, and sometimes dramatic slowing, perhaps cessation, of the fetal heart.

The authors have given us an excellent list of suggestions, and an analgesic drug which may finally replace chloroform in the hands of the general practitioner.

Dr. C. H. Mauzy (Winston-Salem): I would like to mention for the benefit of Dr. Stephen and Dr. Flowers that in 1,000 maternal deaths which I reviewed recently, there were 25 from obstetric anesthesia in this state. Fifteen of these were from spinal anesthesia, 4 or 5 from inhalation anesthesia, mainly gases; 1 from Sodium Pentothal; 1 from curare, and several from ether. I would like to point out that spinal anesthesia, unless it is skillfully administered, is dangerous in obstetrics.

A remarkable fact uncovered by this survey is that, despite the wide use of chloroform in this state, there were no maternal deaths reported from this anesthetic agent. I wonder why chloroform has been so much criticized in obstetrics. We know that it should not be used in toxemia and that it is supposed to cause a certain amount of damage to the liver. I wonder, however, if we have not swung to the extreme in assuming that it is a really dangerous anesthetic.

TRICHLORETHYLENE (TRILENE) ANALGESIA FOR OBSTETRICS AND MINOR SURGERY IN GENERAL PRACTICE

GORDON SMITH, M.D.

SNOW HILL

Doctors since the beginning of time have been seeking better ways and means to ease pain. With the passage of years, and with increased knowledge of physiology, pharmacology, and chemistry, safer and more efficacious methods of analgesia and amnesia have been found. This discussion will be limited to what I consider the most satisfactory analgesic agent for use in obstetrics and minor surgery — trichlorethylene or Trilene—with particular emphasis on the value of this agent to the general practitioner.

Physical Properties

Trichlorethylene, or "Trilene" as it is popularly named, is an unsaturated halogenated hydrocarbon, with a specific gravity of 1.47 and a boiling point of 86-88 C.⁽¹⁾ It is a clear colorless liquid with a fruity or chloroform like odor⁽²⁾. It is non-inflammable when mixed with any proportion of air at ordinary temperatures and pressures, and therefore may be safely used with a cautery, but inflammable mixtures with oxygen in high concentrations are possible.

Trilene should never be used in a closed system with soda-lime, since a chemical reaction takes place between these two substances, resulting in the formation of toxic dichloroacetylene⁽³⁾. Therefore it must be vaporized through a specially designed inhaler—the best of these being the Cyprane Inhaler which will be described later. Trilene is far less toxic than chloroform, but equally potent, requiring only 0.75 to 1.25 per cent in the inhaled atmosphere to produce surgical narcosis⁽⁴⁾.

General Advantages

In obstetrics

No other drug can produce obstetric analgesia and amnesia so rapidly, so easily, and so safely, with minimal after effects, and with such rapid and complete recovery. This recovery period may be characterized by a drowsy euphoria⁽⁵⁾. Many of our 112 obstetric patients were so near to delivery that

they were able to inhale the agent only for a matter of moments, yet in all cases analgesia was marked, and in most, amnesia for the delivery was complete. Recovery was usually so rapid, even after prolonged use, that the majority of patients were able to give coherent and sensible directions immediately *post partem*. None of our parturient mothers or patients were nauseated.

We used some type of forceps delivery in 12 cases, some with episiotomies and repair, and found analgesia and anesthesia completely adequate for each. Noble and Cattack⁽⁵⁾ state that analgesia was adequate in only 15 per cent of their large series of cases requiring instruments. For any type of operative procedure Trilene should be given by a third party, for with self-administration loss of consciousness will cause relaxation and discontinuation of the effect.

In minor surgery

Induction to a plane compatible for minor surgery was rapid and pleasant, and complete recovery followed so quickly that the patients were able to walk out of the office immediately after bandaging. The patients upon whom we performed minor surgical procedures—chiefly suturing, incision, and drainage, reduction of dislocations, and dressing of painful burns—ranged in age from 1 to 60 years.

We found that children took Trilene quite easily and in our series suffered no complications, although convulsions have been reported in the literature among children under 2 years of age^(3,6). The technique of administration was the same as that used in obstetrics, which will be described later.

Complications and Side Effects

Effect on the cardiovascular system

The most common complication of Trilene administration is its effect on the cardiovascular system. Most authorities agree that this effect is not serious and that danger is minimal. There is no significant change in blood pressure, and capillary oozing is not a danger. There is no doubt that vagal tone is increased⁽⁷⁾, thereby inducing bradycardia and setting the stage for the establishment of cardiac arrhythmias such as extra systoles, pulsus bigeminus, and very rarely, multifocal ventricular tachycardia. The probability that such arrhythmias will occur during the inhalation of trichlorethylene is exceedingly remote, for the concen-

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trations inhaled are quite low and only 1 cardiac death has been reported from the many thousand instances in which it has been used⁽⁸⁾. We had no cardiac complications at all.

Respirations may become rapid and shallow if the induction is too speedy, but this is of no real consequence and rarely occurs in the stage of analgesia alone. There is no excessive pulmonary or salivary secretion even in the absence of premedication. The lungs are the main channels of elimination, although a small portion is excreted in the urine as trichloroacetic acid⁽⁴⁾.

Excitement reactions

Every physician who delivers babies is acquainted with the wildly thrashing, incoherent woman in the second stage of labor, who has been given Demerol, scopolamine, and barbiturates. This conduct is extremely difficult to cope with in the home. One of the great advantages of Trilene is the absence of excitement reactions, restlessness, and delirium⁽⁹⁾. Only 2 of our patients showed any type of mental aberration and in both it was very transient. In one instance it was not evident until after scopolamine was given for an expected prolonged labor. In only 2 instances was any type of restraint necessary, and this was during the application of low forceps after prolonged labor; yet the patients experienced complete amnesia for the entire time⁽¹⁰⁾.

Effect on uterine contractions

We agree with Freedman⁽¹¹⁾ that this chemical exerts no effect on uterine contractions, although Calvert⁽¹²⁾ found an increase in time between uterine contractions while Trilene was being used. We believe its rapid analgesic effect on a woman having hard, fast contractions near the end of the second stage may give the appearance of slowing pains, while relaxing analgesic effect on a taut, nervous primipara may give the appearance of speeding pains⁽¹⁰⁾.

Effect on the fetus

In our 112 newborns, there was no incidence of fetal distress that could be attributed in any way to Trilene or prolongation of labor by this agent. It is true there was 1 fetal death and several fetal complications, but the anesthetic played no part in them, even though trichlorethylene readily passes

Table 1
Data on the Use of Trilene in a Cyprane Inhaler in 112* Home Deliveries

Deliveries	No. Cases
Primipara	20
Multipara	92
Total.....	112
Obstetric complications	
Persistent occiput posterior	8
Toxemia	3
Prolonged labor	3
Breech presentation	2
Footling presentation	1
Brow presentation	1
Impacted shoulders	1
Premature separation placenta	1
Contracted pelvis	1
Total.....	21
Fetal complications	
Fetal distress following prolonged labor.....	5
Prematurity	4
Stillborn	2
1 dead for 72 hours	
1 premature separation placenta	
Aspiration mucus	1
Monstrosity	1
Normal delivery and died after 48 hours.....	1
Total.....	14
Third stage complications	
Moderate hemorrhage (cause unknown).....	1
Moderate hemorrhage following prolonged labor	1
Total.....	2
Operative procedures	
Low forceps	6
Outlet forceps	6
Episiotomy and repair	4
Total.....	16
Anesthetic complications	
Tachypnea (transient)	3
Delirium (transient, mild)	1
Total.....	4
Other medication used	
Demerol and scopolamine	31
Demerol	53
Total.....	84
Length of administration	
Longest period	14 hours
Shortest period	30 seconds
Average	1 hour, 49 minutes

*Several of the complications are duplicated under different headings.

the placental barrier as shown by Hellwell and Hutton⁽¹³⁾.

Method of Administration

This work was done in a rural county in which tobacco is the primary source of income. The average patient was a poorly educated, not very clean member of a tenant farmer's family, who was delivered in her own bed in her own home. Many times there

would be no running water, electricity or fly screens, and occasionally there would be another occupant in the delivery bed. Only about 25 per cent of the residents of this county had their babies in hospitals during the past two years, as opposed to the national average of over 85 per cent⁽¹⁴⁾. There is no hospital or clinic in the entire county, nor is there a drugstore or registered pharmacist. Medicines are dispensed by each physician and trained nurses and anesthetists are unavailable. Since the help given during deliveries comes from a friend or relative of the patient, the safety, ease, and simplicity of Trilene administered through a Cyprane Inhaler cannot be overestimated.

Apparatus and technique

This inhaler is a simple apparatus, consisting essentially of a small hand-sized chrome canister and a standard rubber face-piece, and weighing only 1 $\frac{1}{4}$ pounds complete. Around the neck of the canister is a mixture-adjustment collar which is set one notch to the maximum side of the halfway mark. At this point analgesia is supposed to correspond to that produced by a 50 per cent nitrous-oxide-air mixture⁽¹⁵⁾, but I believe the effect is greater than this. The canister is filled by pouring 15 cc. of the liquid through a removal screw-cap in the base. Rebreathing is impossible, owing to an expiratory and a non-return valve. A wrist strap is also available, which is useful in self-administration.

In our 112 cases Trilene was administered from 30 seconds to 14 hours, and the technique was always the same, depending upon the stage of labor encountered. Ordinarily, if time was available, the patient was shown how the mask should be placed over the face at the beginning of each pain, several rapid breaths taken, and the mask kept over the face during the pain. Thus the patient was enabled to control induction as she desired. The infrequent patient who at first complained of the odor could remove or re-apply the mask at will; with only one exception, however, this objection was soon overcome, and each mother used the inhaler enthusiastically when she realized the amount of relief she was obtaining. As the cervix completely dilated and delivery was imminent, the inhaler was used more or less continuously. In the great majority of cases the "push reflex" was not lost, but very rarely the mask had to be removed for a mother to help voluntarily. Even in these instances, however, amnesia

was complete for the delivery. Forceps extractions and placental extractions were carried out in the same manner.

Dosage

The amount of Trilene used is dependant upon the temperature of the room, the rate of breathing, and the severity and frequency of the pains. Scales and Ohlne estimate that 15 cc. will be effective, under normal conditions, approximately one and one-half hours⁽¹⁶⁾. In our hands, 15 cc. produced an effect lasting from 12 minutes to over four hours. In a rural practice the ease and safety of self-administration and the duration of analgesia is a decided advantage, for in many instances we were able to leave the inhaler with the patients in their homes, go back to bed, or to the office, and return later for delivery.

Summary

I believe that in Trilene we have found the closest approach to the optimal analgesic agent for minor office surgery and home obstetrics. The drug is also being used almost exclusively in the delivery rooms of several first-class hospitals in the state.

In a preliminary report published in *G. P.* April, 1952, I listed the following advantages, which after 62 additional cases, I find no cause to change:

- (1) It is safe to use in minor pediatric surgery;
- (2) it has a potent analgesic and amnesic effect, given alone or in combination with Demerol and/or scopolamine;
- (3) its odor is not unpleasant;
- (4) induction is rapid and awakening rapid and lucid;
- (5) side effects such as restlessness, nausea, vomiting, and headache are minimal;
- (6) it can be employed for long periods of time without endangering mother or child, or affecting the uterus;
- (7) the incidence of hemorrhage and other obstetrics complication is not increased;
- (8) labor is not prolonged;
- (9) administration is simple and easy;
- (10) it boosts the morale of the parturient woman;
- (11) it does not depress fetal respiration;
- (12) it can be used safely even in the absence of a doctor.

I wish to thank Dr. C. R. Stephen, professor of anesthesiology, School of Medicine, Duke University, for his interest and helpful criticism.

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Discussion

Dr. C. R. Stephen (Durham): I think Dr. Smith ought to be warmly congratulated on the work he has done in preparing this paper. It was difficult to do this in the round of general practice, and I think he deserves the utmost gratitude for it.

This drug was used in England in over 2,000,000 cases. It has been used in Canada since 1947, and approximately 2,500 similar inhalers are available in Canada now and are being used more and more as time goes by.

The outstanding feature of trichlorethylene is that in it we have a drug which will provide adequate analgesia without loss of consciousness. Its particularly psychologic advantage is that we can give it to the mother and say: This will relieve your pain. Take it as you want it. If you don't want to take it, you don't have to. You can give yourself more, if you care to.

Dr. John Newborn (Farmville): Where a third person gives the anesthetic, how can he tell when he has reached the safety limit?

Dr. Smith: There is no danger of toxicity. The drug has no toxic effects when given as we use it in obstetrics. Am I right, Dr. Stephen?

Dr. Stephen: I think one can say that when the drug is administered with an inhaler, there is no danger of toxicity. The highest concentration is not going to produce toxic effects in the mother.

Of course, this is a toxic drug. If we give enough of any anesthetic agent, it will kill the patient. The same is true of trichlorethylene, but not when it is administered with this type of inhaler.

Occasionally a patient will have fast, shallow respirations. That means that this drug has more than a normal effect on what is called a reflex center, and emphasizes this fact: Trichlorethylene does not depress respirations; it tends to accentuate them.

In higher concentrations—much higher than are possible with this particular inhaler—bradycardia may develop. The concentrations that are given with this inhaler, however, will not produce complications.

ACUTE SUBARACHNOID HEMORRHAGE

Etiology and Mortality

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and

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Recent technical advances in neurosurgery have made it possible to determine more accurately the etiology of acute subarachnoid hemorrhage and to treat selected cases effectively. The development of cerebral angiography especially has brought about a renewed interest which makes it mandatory to re-examine the broad problem of intracranial bleeding. For this reason, a review of 316 cases of proved subarachnoid hemorrhage that have occurred among 343 cases of non-traumatic intracranial bleeding is presented.

The diagnosis of acute subarachnoid hemorrhage is easily made, and is usually characterized by the sudden onset of severe headache, nausea and vomiting, nuchal rigidity, and some alteration in the state of consciousness. The syndrome may be associated with seizures, hemiparesis, or other neurologic deficits. The diagnosis may be confirmed by the finding of bloody or xanthochromic fluid at lumbar puncture. In only 5 per cent of the cases of intracranial bleeding does the hemorrhage remain within the brain substance, failing to contaminate the cerebrospinal fluid.

Etiologic Classification of Cases

After reviewing 316 cases of intracranial bleeding with subarachnoid hemorrhage, it became apparent that mortality statistics from previous reviews of the subject were misleading, because there had not always been a clear etiologic differentiation among cases. Indeed, the terms "spontaneous subarachnoid hemorrhage" and "ruptured congenital aneurysm" have been used synonymously; therefore, the tacit assumption has

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been that mortality figures may be used interchangeably. From the study of this series of cases, it seems important to emphasize the fact that specific etiologic factors determine the mortality rate in cases termed acute subarachnoid hemorrhage.

In this series of 316 cases (table 1), the etiology was established by arteriogram, operation, or autopsy in 173 instances. The cause of bleeding in 143 cases has not been determined. Many of these cases, however, date back as long as 20 years and appeared before cerebral angiography was used as a diagnostic procedure; less than 1/5 of them have had arteriograms.

Table 1
Etiology

Diagnosis	No. Cases
Acute subarachnoid hemorrhage, etiology unknown	143
Congenital cerebral aneurysm	102
Hypertensive cardiovascular disease and arteriosclerosis	43
Arteriovenous malformation	20
Spontaneous intracerebral hematoma	8
Total	316

In 250 of the 316 cases, no definitive treatment was undertaken, and their natural course remained unaffected. An examination of these data (table 2) reveals at once that the mortality varied widely among the various etiologic groups.

Table 2
Mortality

Etiology	Per Cent
Acute subarachnoid hemorrhage, etiology unknown	24
Congenital cerebral aneurysm	90
Hypertensive cardiovascular disease and arteriosclerosis	100
Arteriovenous malformation	33
"Spontaneous" intracerebral hematoma	100

In Table 2, the over-all mortality rate is given; in Table 3 it is divided into deaths due to the first episode of bleeding and those resulting from the recurrent hemorrhage.

One may compare the survival time following the first subarachnoid hemorrhage in the two large etiologic groups in which the mortality rates are high—namely, the hypertensive cardiovascular disease group and the aneurysm group (table 4). The initial mortality was very high (64 per cent) when the bleeding was due to hypertensive vascular disease, and 98 per cent of the deaths in this group occurred by the end of the first week. On the other hand, when the bleeding was due to a ruptured aneurysm, the initial mor-

Table 3
Mortality Rates from First and Recurrent Hemorrhages

Etiology	No. Cases	First subarachnoid hemorrhage	Recurrent subarachnoid hemorrhage
Acute subarachnoid hemorrhage (unknown)	143	16%	8%
Congenital cerebral aneurysm (untreated)	52	35	85
Hypertensive cardiovascular disease	43	86	100
Arteriovenous malformation	9	22	14
"Spontaneous" intracerebral hematoma	3	100	

Table 4
Survival Time

Time	HCVd (No. deaths 42)	Aneurysm (No. deaths 47)
24 hours	27 (63%)	12 (26%)
1 week	42 (98%)	16 (34%)*
2 weeks	43 (100%)	23 (50%)*
3 weeks		31 (66%)*
4 weeks		39 (83%)*
8 weeks		42 (89%)*
12 weeks		45 (96%)*
10 years		2 (100%)*

*Died of recurrent bleeding.

tality was relatively low (26 per cent); but recurrent bleeding, which is the rule and is unpredictable, produced a total of 96 per cent by the third month.

Comment

In discussing the origin of spontaneous subarachnoid hemorrhage, most standard textbooks of neurology have placed about equal emphasis on a sclerotic cerebral artery in the presence of hypertensive cardiovascular disease and on an aneurysm of the Circle of Willis. Nine statistical studies⁽¹⁾ from the literature on this subject include 363 fatal cases that came to autopsy. Of these, ruptured aneurysm was the cause of hemorrhage in 220 (61 per cent) and arteriosclerotic or hypertensive vascular disease in 33 (9 per cent). In our series of 173 cases of known etiology, 102 (59 per cent) resulted from ruptured congenital cerebral aneurysm, and 43 (24 per cent) occurred in patients with hypertensive arteriosclerotic vascular disease without other abnormalities of the cerebral vessels. Twenty cases (11 per cent) were the result of bleeding from cerebral arteriovenous malformation. Eight cases (5 per cent) resulted from subarachnoid extension of spontaneous intracerebral hemorrhage of undetermined origin. All statistical studies

agree that over 50 per cent of cases of acute subarachnoid hemorrhage result from rupture of an aneurysm. Apoplexy from hypertensive or arteriosclerotic vascular disease is the cause of subarachnoid hemorrhage in not over 25 per cent of cases.

Prognosis

There has been less agreement concerning the prognosis following subarachnoid hemorrhage. Walshe⁽²⁾ in his textbook states: "on the whole, recovery from the original attack is more common than a fatal issue. When recovery appears to be complete, after the requisite period of convalescence is passed, no further trouble may be experienced, and probably the majority of individuals thereafter lead lives of normal health and activity." A number of series of cases with follow-up data appear in the literature and indicate mortality rates from 20 to 60 per cent. The results of follow-up in these series seem to indicate that the chance of survival in recurrent attacks is no better than in the first attack. In this series, the mortality of proved aneurysms (that were not operated upon) was 90 per cent. Thirty-five per cent of the patients died in the first episode, and of those that survived the initial episode 85 per cent died from recurrent hemorrhage.

Although the underlying cause of the subarachnoid hemorrhage seems to be the most important factor in influencing the mortality rate and the probability of recurrent attacks, the fact remains that the etiology cannot be accurately *predicted* on the clinical aspect of any given case. The average age of patients with subarachnoid hemorrhage resulting solely from hypertensive or arteriosclerotic vascular disease was 44 years and that of patients with bleeding aneurysms 38 years. There is a great overlap of ages in the two groups. Of the patients with aneurysms, 35 per cent had blood pressure levels of 150 systolic, and 100 diastolic or greater, and of these nearly half 180/100 or higher. It must also be remembered that an elevation of blood pressure following an episode of intracranial bleeding may be due to the acute rise in intracranial pressure, and may not have existed previous to the bleeding episode.

Survival from subarachnoid hemorrhage occurring in hypertensive patients from normally developed but sclerotic and atheromatous vessels is low because the subarachnoid

hemorrhage in 75 per cent of the cases⁽³⁾ represents extension of a massive intracerebral hemorrhage from the region of the basal ganglion into the ventricles or subarachnoid space. The initial clinical picture in these cases cannot usually be distinguished from that produced by rupture of an aneurysm with invasive bleeding into the brain substance.

Of the large group in which the cause of the bleeding has not been determined, the mortality is relatively low. Only 16 per cent died with the first episode of bleeding, and the few patients who had arteriograms or upon whom postmortem examinations were performed failed to reveal an etiologic factor responsible for the bleeding. Clarification of this obscure problem will require a special long-term study of this interesting group. It undoubtedly must contain cases of aneurysm and vascular malformation which were not disclosed because of lack of complete studies. Arteriograms were made in only 22 of the 143 cases, and in the majority these were confined to only one side.

For the past 15 months, a more intensive effort has been made to determine the etiology of each of the bleeding episodes. During this period, 36 cerebral arteriograms have been made because of intracranial bleeding, with positive findings in 81 per cent. The etiologic factors, aneurysm and angioma, were determined in 71 per cent, and in the other 10 per cent revealed displacement of major vessels by an intracerebral hematoma, but did not demonstrate the cause of the bleeding episode. This would tend to indicate that as cerebral angiography becomes accepted as a definite diagnostic procedure, the diagnosis of acute "subarachnoid hemorrhage of undetermined etiology" will become less common.

It seems obvious from the forgoing data, that if deaths are to be prevented from recurrent bleeding aneurysms, it is imperative that angiography and definitive surgical treatment be carried out as rapidly as is feasible. That such management is reasonable and effective is attested to by a mortality of only 29 per cent from all causes in the group of 53 surgically treated aneurysms followed over a six year period.

Summary

The mortality from acute subarachnoid hemorrhage due to proved aneurysms which

are not operated upon, approximates 90 per cent. Most of the deaths are due to recurrent hemorrhage, one-half occurring during the first three weeks.

The etiology of acute subarachnoid bleeding cannot be determined on the basis of clinical data alone. Angiography is always indicated.

At least one third of the cases of acute subarachnoid hemorrhage are amenable to surgical therapy.

Definitive diagnostic and surgical procedures should be instituted as soon as possible if death from recurrent bleeding is to be avoided.

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Abstract of Discussion

Dr. Amos Johnson (Garland): As a general practitioner from a rural area I feel inadequate to discuss a paper of this type. Yet, perhaps those of us in general practice who are the first to see the majority of patients with intracranial vascular accidents should be able to recognize the condition. That is as far as the problem concerns us.

Dr. Odom and others who have studied this problem have definitely shown that if patients who have had this type of accident are sent to an institution staffed and equipped to make the angiograms and carry out the operative technique, the incidence of death, particularly when the lesion has been diagnosed as acute aneurysm, can be cut down tremendously.

In any case of sudden, acute headache, followed shortly thereafter by nausea and vomiting and a rigid neck, with perhaps some degree of bradycardia and motor disturbances, the diagnosis is evident. Most general practitioners, however, can carry with them, and frequently do, a sterile needle for performing lumbar punctures. That procedure will confirm the diagnosis in a large number of cases.

The next step is to move that patient some place where he can get adequate treatment. Many of us haven't always done that.

Dr. George Harrell (Winston-Salem): I'd like to ask Dr. Odom whether the diagnostic procedure of angiography, which has obviously been performed with meticulous care in his hands, is adaptable to

the general hospital, and whether the surgical procedures recommended might be anticipated and satisfactorily performed by persons in the type of community general hospitals we are constructing in the state.

Dr. Odom: Dr. Amos Johnson has pointed out what I wanted to emphasize in this paper in a very simple fashion. Once a patient has had an episode of bleeding, he becomes an emergency case, and it's up to the general practitioners to see that he goes some place where he can be treated.

After the episode has passed, these patients have no symptoms—the headache subsides—and you cannot convince them that they are sitting on a keg of dynamite which is liable to explode at any time.

We once made a reservation for a patient to be moved to the hospital three days after his initial episode. His symptoms cleared up, he called in and canceled his reservation, and got up and about, going back to his office. On the eighteenth day after his initial episode he was admitted as an emergency. By the time he arrived he was in extremis, and he died from a ruptured aneurysm within two hours.

On another occasion we made an arteriogram for a 16 year old boy, and on a Saturday morning decided to post him for operation Monday. On Sunday we explained to him and his family that we were going to operate. On Monday morning, by the time we got back to the office after leaving his room, he had another episode of bleeding and was dead within a period of three hours.

There is nothing the surgeon can do once this bleeding has occurred in vital areas of the brain.

In answer to Dr. Harrell's question, cerebral angiography like any other new procedure, takes a great deal of work and close cooperation between the technician and surgeon. It takes a rather long time to become adept at doing cerebral angiograms, but I think that with training anyone can become adept at cerebral angiography if he has access to a well coordinated radiology department.

RECURRENT HEMANGIOPERICYTOMA

Case Report

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and

HAROLD B. KERNODLE, M.D.†

BURLINGTON

That the hemangiopericytoma is an entity separate from glomus and other vascular tumors was recognized by Stout and Murray⁽¹⁾ in 1942. Vascular tumors have been described in large numbers in the early medical writings, and were gradually subdivided until in 1935 Masson described the normal glomus and its tumors, adding another subdivision to this group of neoplasms.

The glomangioma and pericytoma presumably have a common stem cell, the pericyte of Zimmerman. The stem cell modification or

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maturation separating the two as distinct entities has been described by Murray and Stout^(1a).

Case Report

A 47 year old white woman presented herself on January 6, 1950, complaining of a painful, bluish-colored tumor in the web space between the first and second fingers of the right hand. At 16 years of age she had caught a hard baseball that caused throbbing and a lump. Two or three months later she had noticed that the growth was increasing in size. The slightest pressure caused severe pain. The tumor had been present for 31 years. It had become more painful, and larger in the past few days. Under local anesthesia a vascular tumor measuring 1 cm. in diameter was removed. Distributed over the extremities and body were many non-tender, pigmented nevi and red-blue hemangiomas.

The patient came into the office January 29, 1951, complaining that the tumor had recurred in the previous operative area, and was associated with extreme tenderness on pressure. The growth was removed under local anesthesia, and was not attached to the tendon. It measured 1.5 by 1.0 by 1.0 cm. One portion of the tissue was light tan in color; the rest was gray and irregular. There was no enlargement of the epitrochlear or axillary lymph nodes on the right.

The patient returned July 20, 1951, complaining of a recurrent tumor in the original site, associated with tenderness on light touch and severe pain on pressure, radiating to the elbow. The tumor was removed under local anesthesia and was found to be unattached. It measured 1.5 by 1.0 by 1.0 cm., and was white and firm. The follow-up examination on December 11, 1951, revealed the operative site to be well healed. There was no evidence of tumor or pain on light touch or deep pressure in the area.

Specimens of the original tumor and of the two recurrences presented essentially the same microscopic pictures. In each case, low power examination of the tissue showed a neoplasm surrounded by fibrous tissue. The neoplasm is generally a vascular tumor in which the slit-like spaces are filled with blood. The blood spaces were surrounded by dense collections of cells.

High power examination revealed spindle-shaped, oval, or round cells with moderate variations in size and shape. The cytoplasm took a pink stain. The nuclei were varied in

size and shape, being generally oval or round and containing a large dark red nucleolus. Normal mitosis was increased and was generally of the metaphasic type. While these cells were generally spindle-shaped, in looser portions of the tumor they tended to be more rounded. The tissue presented a whorled appearance. The capsule of the tumor was made up of dense or loose hyalinized fibrous tissue, with its nutrient blood supply. In certain areas the capsule was invaded by the neoplasm, and finger-like projections extended into the surrounding connective tissue. The endothelium of the vessels was flattened, with spindle-shaped nuclei.

Comment

Clinically, this case was typical of a simple glomus tumor. The microscopic findings caused the growth to be classified as an hemangiopericytoma. The lesion has recurred twice in the same area. Each was clinically typical of a glomus tumor recurrence. The microscopic examination of the recurrent growth revealed the same pathologic picture as that seen in the original. Although glomus tumors do not usually recur after removal, they have been reported as recurring in the same site.

Pericytomas are more cellular, and tend to recur. This tumor had finger-like strands projecting into the surrounding connective tissue beyond the capsule. Therefore, a reasonably wide excision should be done at the time of removal.

Summary

A case of recurrent hemangiopericytoma has been presented. The clinical findings simulated those of a glomus tumor. Wide excision should prevent recurrences.

Addendum: The patient presented herself on November 6, 1952, for an examination which revealed the presence of a 1 cm. extremely painful, firm tumor 1 cm. lateral and distal to the area of last tumor removal.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
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ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

NOVEMBER, 1952

SOME ELECTION REFLECTIONS

It is always hard to admit a mistake—but intellectual honesty sometimes demands that it be done. In this journal's almost 13 years of existence, its share of editorial mistakes have been made—but none of them greater than two predictions made in the August issue. The first was that "the campaign . . . will probably be conducted on as high a plane—certainly so far as the principals are concerned—as any we have ever had." It is probable that, had the two presidential candidates been left alone, this prophesy would have been fulfilled—but the mud-slinging practiced by our outgoing President and by such Republicans as Senator Joe McCarthy, and the reckless and baseless charges made against both principals resulted in a general free-for-all, name-calling contest.

How much Truman contributed to Stevenson's defeat and the extent to which McCarthy hurt Eisenhower's campaign are debatable questions. Certainly the appeal to the emotions rather than to the reason was an insult to the intelligence of the American people.

The second mistake made in this journal's August editorial was the assumption that Stevenson could count on "the almost solid labor vote." This mistake is cheerfully acknowledged, because it is heartening to learn that the workers themselves were not herded by their union leaders like dumb, driven cattle, but voted their honest convictions. The domination of the federal government by the labor "leaders" (so-called) had become as great a menace as had the rule of big business in bygone days. That the leaders of the three greatest unions had overreached themselves in pledging the labor vote to Stevenson was made manifest by the workers themselves. The ultimate result must almost certainly be for the best interest of the workers as well as of the whole population.

In spite of its bad features, there are many things to be thankful for in the recent election. One is that Americans have come to appreciate their right to vote, as was shown by the unprecedented number going to the polls on election day. Another cause for gratitude is that in only one state was the justice of the voting mechanism questioned. Perhaps the greatest satisfaction of all is that the American people have shown in no uncertain terms that they do not care to go further down the road to socialism. While some of the measures taken by the New Deal and the Fair Deal were salutary, the trend toward socialism had been gaining a dangerous momentum. President Truman insisted that the Democratic campaign must be based upon *his* record—and Stevenson had to accept the issue. This gave the voters a clearcut choice between more socialism on the one hand, and on the other a return to what has been somewhat disparagingly called the American way of life. There was no doubt as to the decision. Stevenson was a fine man who was the victim of circumstances. The majority vote was not so much against him personally as against the present administration, and for one of the nation's greatest popular heroes.

While the Republican victory was in large measure an overwhelming vote of confidence

in General Eisenhower and a tribute to his personal popularity, it also showed that the people had become weary of "the mess" in Washington. They were tired of government by bureaucracy, the corruption of morals in government officials and favorites, the infiltration of Communists into our government, the sale of influence for 5 per cent, mink coats and deep freezers. It is unfortunately true that any political party which stays in power too long is apt to become infested with parasites—either office holders or hangers-on—who profit financially by their connection with the party in power. Certainly General Eisenhower will have a much better opportunity to effect a change and turn such rascals out than Governor Stevenson would have had.

Another cheerful reflection is that the South gave evidence of ending its role as a one-party section. It is to be hoped that Southerners can no longer be counted upon to follow the lead of a woman who wrote for the public opinion column of a daily paper that she would vote for the Devil himself if he were on the Democratic ticket. Perhaps the rising generation of the South will be realistic enough to know that the Civil War is no longer an issue; that Hoover was not personally responsible for the worldwide depression that happened to coincide with his term in office; and that the Democrats have not created real prosperity by borrowing to the limit of our country's resources and by inflating the currency.

An excellent precedent was set which should be followed by all future candidates for major political offices. Both Eisenhower and Stevenson were given thorough physical examinations by competent internists, and the public was assured that they were both in good condition. Most medical men would agree that this assurance was as important as a detailed income tax report.

Finally, both Democrats and Republicans should be made happy by the knowledge that for the first time in history Americans had the privilege of voting for the man who was the first choice of both parties. May he have the united support of the whole nation in the gigantic task facing him!

CHANGE IN THE A.M.A. WASHINGTON OFFICE

Eight years ago a Washington office of the American Medical Association was established with some misgiving. It was feared that such a move would make the American Medical Association more than ever a target for politicians, and that the office would be regarded as a medical lobby. Fortunately, Dr. Joseph S. Lawrence was chosen as director of the office. Under his able management these fears were dissipated. Dr. Lawrence conducted the office with so much wisdom, tact, and ability that it has become increasingly useful. Those who have had occasion to call upon anyone in the Washington office for information or advice have been impressed with the uniform efficiency and courtesy accorded them. The weekly publication of the office, "Capitol Clinic," and the legislative bulletins which are also issued on a weekly basis when Congress is in session have kept their readers well informed as to what is going on in Washington concerning the practice of medicine.

When Dr. Lawrence gave up the office on September 1, Dr. Frank E. Wilson was chosen to succeed him. North Carolinians have a peculiar interest in Dr. Wilson because he is a member of our State Medical Society. Although he was born in Tennessee and was graduated from the University of Tennessee College of Medicine in 1933, he had the good judgment to begin his practice in North Carolina. From 1935 to 1938 he was a general practitioner in Mooresville. From 1939 to 1941 he was health officer of Edgecombe County; from 1941 to 1946 he was on active duty in the army, and he is now a colonel in the Medical Corps Reserve. After receiving his Master of Public Health degree from the University in 1947, he was made deputy medical director of the American Red Cross. Since 1949 he has been deputy director of the Washington office of the A.M.A., and is quite familiar with the job. No doubt members of the North Carolina Medical Society will remember very pleasantly his visits to annual meetings of our Society.

Speaking for the medical profession of the state, the NORTH CAROLINA MEDICAL JOURNAL congratulates Joe Lawrence upon a

job well done, and extends to Frank Wilson congratulations and best wishes upon his elevation to head the very important Washington office of the American Medical Association.

* * *

VIRGINIA LOWERS TAXES

In its issue for July 15 the magazine *Look* applauds the state of Virginia for cutting its income tax by 20 per cent for 1951 and 1952. "Asked for an explanation of this phenomenon, state leaders say it's very simple—you just cut expenses. This revolutionary idea has kept the dogwood state in the black every year, except one, in the past quarter century."

They also state that only non-essential expenses were eliminated. Under a law recently passed, the state income tax is automatically reduced whenever revenues exceed the cost of government.

Maybe North Carolina, with one of the highest tax rates in the Union⁽¹⁾, could learn something from our aristocratic neighbor. At least the cartoon heading the article is somewhat suggestive. Standing within the Virginia state line is a prosperous-looking, well dressed citizen with a pair of shears cutting away a portion of his tax list. Outside the state line two men are looking on wistfully. One of them, with a large patch on his trousers, is turning his pockets wrong side out. The other, holding a tax receipt in his hand, is protected only by a barrel from complete nudity.

1. North Carolina's State Taxes, Editorial, North Carolina M.J. 11:585 (Oct.) 1950.

* * *

THE OLD NORTH STATE MEDICAL SOCIETY RESOLUTION

On page 891 of the *Journal of the A.M.A.* for November 1, in the report of the Board of Trustees, there will be found a lengthy discussion on the resolution introduced by Dr. Millard D. Hill to the House of Delegates in June, 1952. It may be recalled that this resolution asked that the Old North State Medical Society be considered as an affiliate of the Medical Society of the State of North Carolina and the American Medical Association.

Evidently this resolution was given most careful consideration by the Board of Trustees, as well as by the Reference Committee on Miscellaneous Business. It was referred to legal counsel and the opinion given may be summed up in the final paragraph of the report of legal counsel:

"Until the Old North State Medical Society has actually been constituted as an affiliate of the Medical Society of the State of North Carolina, and there is no evidence available as to any action taken by the state medical society to effect such affiliation, it is difficult to understand on what basis the House of Delegates can act with respect to the matter. Then, too, the fact that the Old North State Medical Society is composed of dentists and pharmacists, as well as physicians, would preclude affiliation with the American Medical Association."

Even though this resolution was not accepted, it is to be hoped that some arrangement may be reached whereby the Negro physicians in North Carolina—as well as in the whole United States—will be recognized by organized medical bodies and given postgraduate opportunities comparable to those of the white physicians. A good start has been made in that direction by a number of hospitals which invite Negro physicians to clinicopathologic conferences and other such local postgraduate efforts. Some organizations such as the State Heart Association have encouraged Negro physicians to attend their meetings. It is almost certain that opportunities for postgraduate instruction will be made available to all physicians regardless of creed or color.

* * *

A CORRECTION

In last month's editorial on the North Carolina Memorial Hospital, the names of three staff members were inadvertently omitted. The NORTH CAROLINA MEDICAL JOURNAL is glad to supply them in this column:

1. Dr. A. Price Heusner, professor of surgery in charge of neurological surgery
2. Dr. S. D. McPherson, Jr., associate in the McPherson Hospital in Durham in charge of ophthalmology
3. Dr. Warner Wells, instructor in surgery.

Clinicopathologic Conference

DUKE HOSPITAL

JAMES P. HENDRIX, M.D., *Editor*

Presentation of Case

DR. ANGUS MCBRYDE: A 4 year old colored boy was admitted to Duke Hospital on October 23, 1950. About ten days before admission he had had a cold with slight fever, and began to have respiratory symptoms described as "croup." His symptoms continued, and four days after the onset a weeping, vesicular eruption appeared on the left side of the face and gradually spread to involve the nose and the entire area over the maxillary portion of the left trigeminal nerve. There was considerable swelling and induration of the soft tissues in this area. He was given one injection of penicillin and for six days before admission had received Aureomycin (speroids) every four hours.

Past history: One year before admission the child had had a generalized rash associated with a "strep throat," blood in the stools, and swelling of the abdomen and feet. These symptoms continued over a period of two months. In January, 1950—ten months before admission—he had fever with cellulitis of the face in the same area as on admission, and there was swelling and crusting in this area. During the past year the child on several occasions had had "sores," apparently impetigo, over the face, knees, and fingers. For eighteen months before admission he had been breathing through his mouth and had snored badly.

Physical examination: The temperature was 38.7 C. (101.7 F.), the pulse 100, the blood pressure 100 systolic, 70 diastolic. The patient was moderately ill. Over the maxillary division of the trigeminal nerve there was swelling of the soft tissues and a vesicular crusting eruption. Cervical and submaxillary nodes were described as 1-2 cm. in diameter, discrete and non-tender. Smaller nodes were felt in the axillary and inguinal regions. The nostrils were filled with crusts and exudate, more marked on the left. The chest and heart were normal. The abdomen was protuberant and dull to percussion, and a fluid wave was felt. The liver was enlarged 3 fingers' breadth, and the spleen was thought by most observers to be palpably enlarged.

Examination by an otolaryngologist revealed slight infection of the ethmoid cells bilaterally—hardly more than is seen with the usual respiratory infection.

Laboratory findings: The hemoglobin was 11 Gm., the white blood cell count 9,300, with 39 per cent segmented and 3 per cent non-segmented polymorphonuclears, 2 per cent monocytes, and 56 per cent lymphocytes. Three urinalyses were normal. Serologic tests for syphilis were negative. A tuberculin skin test was positive in a 1:10 dilution only. Stools were negative for occult blood. The serum bilirubin was not elevated. The total serum proteins were 7.5 Gm., with 2.7 Gm. of albumin and 4.8 Gm. of globulin. Thymol turbidity was 1 unit. Two blood cultures were negative. Culture of the skin lesion revealed hemolytic *Micrococcus aureus*. An electrocardiogram was normal. The urine was negative for arsenic. A roentgenogram of the chest was normal. An abdominal film revealed free fluid, and evidences of hepatic and splenic enlargement. Films of the sinuses showed the ethmoids to be cloudy. Intravenous urograms were done, but were not satisfactory.

Blood studies done by the hematologic consultant revealed the following findings: Hemoglobin 11.3 Gm., white blood cell count 6450, platelets numerous. A differential leukocyte count showed 24 per cent segmented polymorphonuclears, 72 per cent large lymphocytes, and 4 per cent monocytes. A bone marrow biopsy was normal. On the day before death, the hemoglobin was 9.8 Gm., the white blood cell count 4350, platelets adequate; a differential leukocyte count revealed 6 per cent segmented and 22 per cent non-segmented polymorphonuclears, 16 per cent lymphocytes, 1 per cent basophils, and 55 per cent monocytes. Toxic granulation was present. Another bone marrow biopsy was normal, and the hematologist felt that this blood picture represented a monocytic response to some primary blood dyscrasia.

Course in the hospital: The child was given adequate doses of Chloromycetin and penicillin, and after two days became afebrile. The skin lesions on the face improved to such an extent that the antibiotics were discontinued one week after admission. At this time he felt well, and was believed to be about ready for discharge. Ten days after admission, however, he became worse, and refused food. The next day, November 9, he became comatose,

and on November 10 he had a persistent nose-bleed, followed shortly by extreme respiratory difficulty and high fever. Exophthalmos appeared on the right side. Tracheotomy was attempted, but the patient expired during this procedure.

Clinical Discussion

DR. MCBRYDE: Facts worthy of special note are the facial lesion, the nasal discharge, the enlarged liver, and the presence of ascites, enlargement of the regional lymph nodes, and fever.

The facial lesion described is most suggestive of herpes zoster with secondary infection. One, therefore, must postulate that this child had herpes zoster, and suspect that he may have had an encephalitic lesion due to this virus. The remainder of the symptoms, with the accompanying fever and ensuing death, would suggest either a chronic infectious process which terminated in a sudden overwhelming infection, or a malignant process with terminal infection.

For one year before the child's death he had had recurrent skin lesions, usually impetiginous. There is also a history of nasal stoppage, with marked nasal crusting and exudate, during his hospital stay. All of these manifestations may have been due to staphylococcal infection. The enlarged liver could represent a response to chronic infection, with hepatitis and secondary ascites. The lymph node enlargement and fever would also fit into this picture. Two blood cultures made on the day of admission were negative, but no blood cultures were made during the last two days of his illness.

One also must consider the possibility of a granulomatous process, such as Boeck's sarcoid. The reversal of the albumin-globulin ratio without a decrease in the total serum proteins is perhaps suggestive of this process, although no characteristic lung, eye, or skin lesions were present. Xanthomatosis (Hand-Schüller-Christian disease) must be considered, but again we have no evidence of bone or skin lesions. Tuberculosis, I believe, can be ruled out by the rather long course without other evidence of tuberculous involvement.

As far as malignancy is concerned, the peripheral blood picture and the repeated bone marrow studies would eliminate the possibility of leukemia. This child might possibly have had Hodgkin's disease. Certainly

the enlarged liver, lymph node enlargement, and fever would fit this diagnosis. We also have no evidence which would rule out a malignant process in the region of the kidney or adrenal glands or in the nasopharynx. At this stage, however, there should have been some evidence of metastasis or of bone involvement if a malignant process had been present.

In summary, therefore, I believe that this picture most likely represents a response to a chronic infectious process, type undetermined, but possibly an infection with *Staphylococcus aureus*. The presence of unilateral exophthalmos shortly before death might point toward a cavernous sinus thrombosis. Other possible diagnoses are: (1) herpes zoster with possible herpes encephalitis, which can only be determined by the autopsy findings; (2) a malignant process, the most likely being Hodgkin's disease, although other types of malignancy are not ruled out; (3) a granulomatous process, especially Boeck's sarcoid.

Clinical Diagnoses

1. Chronic infection, possibly with *Staphylococcus aureus*, with possible cavernous sinus thrombosis.
2. Herpes zoster, with possible herpes encephalitis.

Discussion of Pathologic Findings

DR. ALBERT G. SMITH: The case presented here furnishes us with an interesting example of encephalitis due presumably to the virus of herpes zoster. Sections of the skin containing the herpes lesions do not show inclusion bodies or the classical changes ordinarily produced in the epidermis by herpes, but there is a pronounced infiltration of round cells about blood vessels and in the subepidermis in general. Intracytoplasmic vacuoles are especially prominent in some areas. This mononuclear reaction can be traced through the peripheral nerves into the gasserian ganglion. Going further in the central nervous system, we found considerable quantities of perivascular infiltrates in the midbrain (fig. 1), but not in the cortex. Our interpretation of this whole situation is that we are dealing with an instance of herpes zoster with invasion of the central nervous system by the virus. Herpes zoster encephalitis is not a common disease.

In addition to the lesions in the skin and

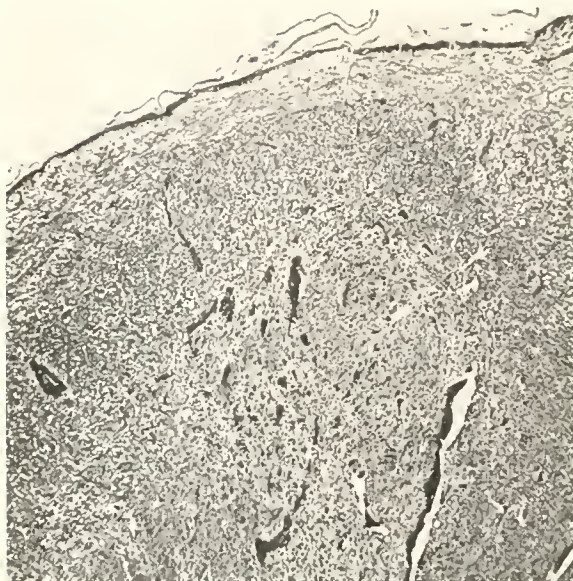


Fig. 1. A section of the brain stem revealing a focal area of myelitis characterized by perivascular mononuclear cell infiltration and destruction.

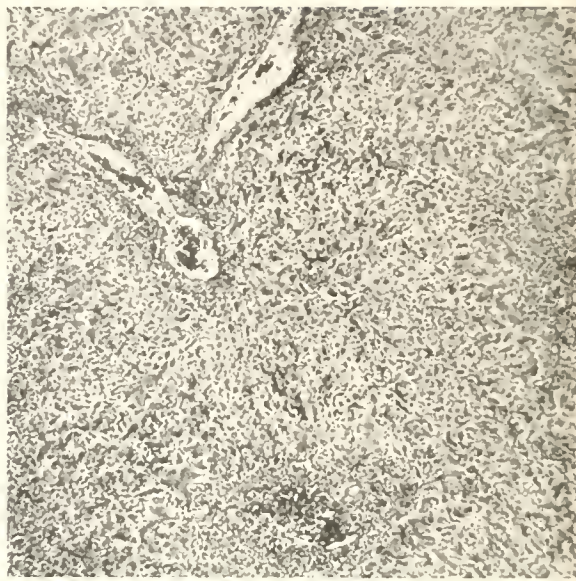


Fig. 2. A section of the liver showing extensive infiltration of the portal areas by lymphocytes and other mononuclear cells.

central nervous system, a profound mononuclear infiltrate was found in the portal and central areas of the liver, and focally in the parenchymal areas; this is the type of reaction usually seen in leukemia (fig. 2). The nature of the infiltrating cell cannot be certainly determined, but it resembles a young lymphocyte or monocyte. Some plasma cells are seen. The infiltrate is present to a lesser extent in the kidney.

The hepatic infiltrate could be interpreted as representing a mononuclear response to generalized propagation of the herpes zoster virus. This type of microscopic picture has not been described in cases of herpes zoster; but few cases of herpes zoster come to autopsy. A portal infiltrate of lymphocytes and other mononuclear cells, which in some respects resembles the present case, occurs in such virus diseases as infectious hepatitis and, rarely, in poliomyelitis. However, the portal and renal infiltrates in this case strongly suggest leukemia. The slides of this case have been reviewed by a number of distinguished pathologists here and elsewhere, all of whom think that the liver and kidney lesions most likely represent leukemia.

It should be recalled that the consulting hematologist who saw this child prior to death felt that there was a peripheral mononucleosis characterized by a predominance of cells described by him as monocytes; he reported that a bone marrow study revealed

no evidence of any type of leukemia which could be diagnosed from the marrow smear. It was the hematologist's interpretation that this was a reactive mononucleosis secondary to some other process.

The bone marrow studies done from autopsy material tend to confirm these antemortem observations: they show no great predominance of myeloblasts, or striking increase in cells of the lymphocytic or monocytic series. All lymph nodes show hyperplasia with relative loss of distinguishable germinal centers. The reticulo-endothelial portions, however, are very distinct and are strikingly hyperplastic in some nodes. The cells in the node include young and mature lymphocytes, some plasma cells, and some mononuclear cells of larger volume than lymphocytes but not readily distinguishable as belonging to the monocytic or myeloblastic series. I believe these cells are probably the same as those found in the circulating blood prior to death. These changes in the bone marrow and lymph nodes are compatible with those of lymphocytic leukemia.

An interesting alternate interpretation is that the virus of herpes zoster produced a picture resembling leukemia in this child. Viruses are known to produce similar effects in fowl leukosis and in venereal infectious lymphosarcoma of dogs. Perhaps this case

represents a leukemic response of this nature, which was not evident clinically.

In summary, the clinical and pathologic characteristics of the face and nerve lesions are in keeping with those described in previous cases of herpes zoster with encephalitis, although characteristic viral inclusions were not found. The lesions in the liver and kidney have been thought by a majority of observers to represent leukemia.

Anatomic Diagnoses

Herpes zoster of the skin in the sensory area of the maxillary division of the left trigeminal nerve, with involvement of the perineurium of the left gasserian ganglion and brain stem.

Focal, portal and central mononuclear infiltrates of the liver and kidneys (leukemia, lymphocytic).

Generalized lymphoid hyperplasia of lymph nodes.

Inflammation of the nasal mucous membranes.

Focal edema, atelectasis, congestion hemorrhage, and emphysema of the lungs.

Acute bronchitis.

Patent foramen ovale.

Accessory spleen.

Our Authorized Forms of Tuberculosis Work assign the funds to the task of release. In this role one sees the Seals at work, creating through interpretation and then releasing an informed public opinion to the support of the tuberculosis control program. Once sufficient interest is aroused it leads to the releasing of the financial aid that's needed in casefinding, treatment and rehabilitation.

Again you find them releasing by means of research, the mystery that once shrouded the tubercle bacilli and revealing to scientists and medical men the drugs or other methods of treatment to which the disease is most vulnerable.

Perhaps their greatest role is releasing, through education, the masses from fears, superstitions, complacency and ignorance regarding the disease, and presenting the facts that will help people to help themselves—to know what causes TB, how to cure it and how to prevent it.

Funds free to participate in or to initiate a program of this nature, designed for all the people, will not only aid a few patients and their families but will wage an unceasing and relentless war against tuberculosis until it is eventually eradicated.

VELMA JOYNER
NCTA

Committees and Organizations

NORTH CAROLINA TUBERCULOSIS ASSOCIATION

RELEASE VS RELIEF*

The distinguished Chinese educator, Jimmy Yen, once when discussing financial aid received by his country from America stated, "I advocate using these funds for release instead of relief." To me the statement was a striking one, and as I followed his discourse I saw in his explanation a definite similarity to the basic philosophy regarding the use of Christmas Seals.

Because this method of using funds is not always understood, the promoters of tuberculosis control through tuberculosis associations have had an uphill struggle. They have often had to choose between relief for a few and release for many when disbursing Christmas Seal funds.

*Reprinted from the North Carolina Tuberculosis Association News Letter, October, 1952.

Help Fight TB



Buy Christmas Seals

CORRESPONDENCE

U.S. vs. the Hoxsey Cancer Clinic

To the editor:

You may be interested in the enclosed opinion of the U.S. Court of Appeals for the Fifth Circuit in the case of U.S. v. Hoxsey Cancer Clinic, a Partnership, and Harry M. Hoxsey, an Individual. This opinion is the result of an appeal in a vigorously contested case tried in the U.S. District Court at Dallas, Texas. It reverses the judgment of the trial Judge (William H. Atwell, N. Dist. of Texas) and directs that Court to issue an injunction prohibiting the defendants from distributing in interstate commerce brownish-black, and pink, liquids intended for the treatment of cancer in man.

In many parts of the country, people are taking the Hoxsey medicines in the belief that they may be an effective treatment for cancer. Friends and relatives of cancer victims frequently query local physicians concerning this treatment. You may wish to publish information about this case so that physicians will have the facts at hand concerning these drugs, in the event of such inquiries.

The following important principles are laid down in the Circuit Court opinion, based on testimony by cancer experts.

1. "****there is only one reliable and accurate means of determining whether what is thought to be cancer is, in truth and fact, actually cancer. This requires a biopsy, a microscopic examination of a piece of tissue removed from the infected and diseased region."

2. "****the opinion of a layman as to whether he has, or had, cancer, or a like opinion as to whether he has been cured and no longer bears the disease, if, in fact, it ever actually existed, is entitled to little, if any, weight."

3. "****despite the vast and continuous research which has been conducted into the cause of, and possible cure for, cancer the aggregate of medical experience and qualified experts recognize in the treatment of internal cancer only the methods of surgery, x-ray, radium and some of the radio-active by-products of atomic bomb production."

4. "****Upon such subjects a Court should not be so blind and deaf as to fail to see, hear and understand the import and effect of such

matters of general public knowledge and acceptance, especially where they are established by the overwhelming weight of disinterested testimony****."

The Hoxsey Clinic is located in Dallas, Texas, and ships its drugs to patients in many other states. According to the unanimous opinion of the Court of Appeals, consisting of Judges Russell, Hutcheson, and Rives, "the overwhelming weight of the credible evidence requires a conclusion that the representation that the Hoxsey liquid medicines are efficacious in the cure of cancer is *** false and misleading. The evidence as a whole does not support the finding of the trial Court that 'some it cures, and some it does not cure, and some it relieves somewhat'."

Under the law the defendants still have the right to petition for review by the U.S. Supreme Court.

C. W. CRAWFORD

Commissioner of Food and Drugs
Food and Drug Administration

Bidrolin Newest Armour Pharmaceutical Product

The Armour Laboratories announces Bidrolin, which combines for the first time dehydrocholic acid and choline, as the newest addition to its line of pharmaceutical products.

Bidrolin tablets each contain 1.9 grains of dehydrocholic acid and 2.5 grains of choline bitartrate.

It is of special value in the management of indigestion, constipation and flatulence of biliary origin, in biliary stasis, non-calculous cholangitis and cholecystitis when the gallbladder is still able to expand, and in maintaining drainage after gallbladder surgery.

Lilly Announces Co-Pyronil

The Lilly Research Laboratories have prepared a new series of compounds possessing striking antihistaminic properties. The most effective of these is 'Pyroneil' (Pyrrobutamine, Lilly), which was shown by animal tests to have a longer duration of effect than that of any other known antihistaminic. During the 1951 hay-fever season, research clinicians reported superior results in an impressive majority of cases. Side effects on effective therapeutic doses were usually negligible.

The drug is slow in onset of action. This characteristic is overcome by the combination of 15 mg. of 'Pyroneil' with fast-acting Thienylpyramine and Cyclopentamine. The resulting formula ('Co-Pyroneil') thus gives prompt action followed by prolonged relief.

BULLETIN BOARD

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. William L. Fleming, professor of preventive medicine, and Dr. Cecil Sheps, director of the Planning Section of the Division of Health Affairs, participated in the working conference on "Preventive Medicine in Medical Schools" at Colorado Springs, November 3 to 7. This conference, co-sponsored by the Association of American Medical Colleges and the Conference of Professors of Preventive Medicine and financed by grants from several foundations, was devoted to a thoroughgoing study of the objectives and functions of departments of preventive medicine, the place of preventive medicine and public health in the medical curriculum, and the most effective ways of integrating teaching in these fields into the total teaching program. The comprehensive recommendations developed by the Conference have far reaching implications for the entire field of medical education.

* * *

Dr. Nathan A. Womack, professor of surgery, was the guest of the Eighth District Medical Society at its October meeting in High Point and spoke on "Diseases of the Biliary Tract."

* * *

Dr. A. Price Heusner, professor of neurosurgery, and Dr. Thomas W. Farmer, professor of neurology, discussed "Head Injuries" at a meeting in Fayetteville on October 24 of the Fayetteville Medical Society and the medical staffs of Fort Bragg and of the Veterans Administration Hospital.

* * *

Dr. Edward F. Adolph, president-elect of the American Physiological Society, spent November 12 and 13 in Chapel Hill; he conducted a seminar on "Water and Electrolyte Balance", and gave an evening lecture on "Survival in the Desert and in the Arctic."

* * *

Members of the Department of Medicine participated in several meetings in the State during October: Dr. Isaac M. Taylor met with the Guilford County Medical Society in Greensboro and discussed "The Care of the Cardiac Patient at Surgery," and later in the month read a paper on "Diagnostic Procedures in Thyroid Disease" before the Sixth District Medical Society at Butner; Dr. Ernest Craig also attended the Butner meeting and discussed "Treatment of Rheumatic Fever." Dr. Louis G. Welt was the guest of the Tenth District Medical Society in Asheville and spoke on "The Problems of Fluid Balance in Diseases of the Central Nervous System." Dr. John T. Sessions presented a paper on "The Management of Massive Gastrointestinal Hemorrhage" before the Cabarrus County Medical Society in Concord. Dr. Jeffress G. Palmer met with the hospital staff of the Memorial General Hospital in Kinston to discuss "The Diagnosis and Management of Anemia." Dr. Charles H. Burnett was guest speaker at the Alamance-Caswell Medical Society meeting in Burlington; his topic was "Current Trends in the Treatment of Shock."

* * *

Dr. William P. Richardson, professor of preventive medicine, attended the convention of the American Public Health Association in Cleveland in October. While there, he participated in a special conference on the training of public health workers, with particular reference to the program for residency for physicians in public health.

* * *

Dr. George C. Ham, professor of psychiatry, spoke to the members of the Virginia Neuropsychiatric Society on "The Science of Human Adaptation" at its meeting at the Veterans Administration Hospital in Roanoke on October 8; on October 11 he participated in the panel on research of the scientific meeting of the Twentieth Anniversary Celebration of the Institute for Psychoanalysis in Chicago as the discussant for Dr. I. Arthur Mirsky's paper on "Psychoanalysis and the Biological Science." On October 21 Dr. Ham met with the Mercy Hospital staff in Charlotte to discuss "Understanding Psychosomatic Disorders with Special Reference to the Respiratory System."

* * *

Dr. Ralph T. Overman, of the Oak Ridge Institute of Nuclear Studies, visited the University on November 19 and gave a lecture entitled "Is Science a Sacred Cow?"

* * *

Dr. Edward C. Curnen, professor of pediatrics, presented a paper on "The Role of Coxsackie Viruses in Human Disease" at the annual meeting of the Southern Medical Association in Miami in November.

* * *

Dr. Kenneth M. Brinkhous, professor of pathology, served as moderator in a round table discussion on "Advances in the Diagnosis of Cancer" at the Fourth Annual Medical and Surgical Symposium of the Raleigh Academy of Medicine on November 7; other participants were Dr. Milton Friedman of New York University, Dr. Elmer Hess of Erie, Pennsylvania, Dr. Mavis P. Kelsey of the University of Texas, Dr. Emil Novak of Johns Hopkins University, and Dr. George T. Pack of Memorial Hospital in New York.

* * *

Dr. W. R. Berryhill attended the annual meeting of the Association of American Medical Colleges in Colorado Springs in November.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

TENTATIVE PROGRAM Fifteenth Annual Symposium December 9-10, 1952

ADVANCES IN THERAPY

Tuesday, December 9, 1952

2:00- 3:30 P.M.—Dr. L. J. Meduna, Professor of Psychiatry, University of Illinois, Chicago—"CO-2 Treatment of Psychosomatic Disorders."

3:30- 4:30 P.M.—Dr. James Toman, Division of Neurophysiological Research, Psychosomatic and Psychiatric Institute, Michael Reese Hospital, Chicago—"Mechanism of Action in Relation to Clinical Effectiveness of Anti-convulsant Drugs."

4:30- 5:30 P.M.—Dr. C. P. Rhoads, Director, Memorial Center for Cancer and Allied Diseases; Professor of Pathology, Sloan-Kettering Division, Cornell University Medical College—"Trends in the Management of Neoplastic Disease."

INTERMISSION

8:00- 9:00 P.M.—Dr. Harry Eagle, Chief, Experimental Therapeutics, National Microbiological Institute, National Institutes of Health, Bethesda 14, Maryland—"Antibiotic Therapy."

9:00-10:00 P.M.—Dr. J. Maxwell Chamberlain, Associate Surgeon, Columbia University College of Surgeons; Associate, Visiting Chest Surgeon Bellevue Hospital, New York, N. Y.; Attending Thoracic Surgeon, Roosevelt Hospital, New York—"Segmental Resection in the Surgical Treatment of Pulmonary Tuberculosis (400 cases)."

Wednesday, December 10, 1952

9:00-10:00 A.M.—Dr. Charles P. Bailey, Professor and Head, Department of Thoracic Surgery, Hahnemann Medical College and Hospital, Philadelphia—"Intracardiac Surgery."

10:00-11:00 A.M. — Dr. Lewis Dexter, Physician, Peter Bent Brigham Hospital; Assistant Professor of Medicine and Tutor in Medicine, Harvard Medical School—"Pathological Physiology of Mitral Stenosis and its Surgical Implications."

11:00-12:00 P.M.—Dr. Samuel A. Levine, Physician, Peter Bent Brigham Hospital, and Clinical Professor of Medicine, Harvard Medical School—"A Cardiologist's View of Mitral Valvuloplasty."

2:00- 3:00 P.M.—Dr. Irving S. Wright, Professor of Clinical Medicine, Cornell University Medical College; President, American Heart Association—"Modern Treatment of Myocardial Infarction."

3:00- 4:00 P.M.—Dr. Joseph J. Bunim, Chief, Arthritis and Rheumatism Branch, National Institute of Arthritis and Metabolic Diseases—"Recent Observations on Prevention and Treatment of Rheumatic Fever."

* * *

The Duke University Medical School has begun a series of orientation lectures for new medical school and hospital personnel, Dr. J. E. Markee announced recently.

Dr. Markee, chairman of the Medical School's committee on admissions, said the aim of the 10-lecture series is to teach new personnel the close teamwork between departments in running a hospital and medical school.

Nearly 200 new medical and nursing students, medical technicians, medical record librarians, administrative interns, social workers and other medical school and hospital personnel attended the first lecture. The series will continue throughout the fall term.

Meetings will be held each Saturday in the Duke Chemistry Building Auditorium. Future lecture topics will include modern-day research, nursing programs, legal responsibilities, church relationships, how hospitals work, physical therapy and physical medicine, care of women, and the place of technology.

* * *

Duke University Nursing School started its 1952-1953 mobile institute for premature infant care in North Carolina with a two-day course at Bryson City, October 14-15.

The institutes are designed to help give premature care training to North Carolina nurses who are unable to attend the intensive courses at Duke.

"While this arrangement is not as satisfactory as the three and four-week courses conducted at Duke," Dean Florence K. Wilson of the Duke Nursing School said, "it does make the course available to nurses in the state who otherwise would not be able to take advantage of this training."

The program, sponsored by the N. C. Pediatric Society and the N. C. League of Nursing Education

in cooperation with the Duke Nursing School and administered through the State Board of Health, in one year has cut in half infant mortality in North Carolina's six major premature centers, it was recently reported.

NORTH CAROLINA HEART ASSOCIATION

A new bimonthly scientific journal, *Circulation Research*, the only publication devoted exclusively to reports on fundamental studies related to the heart and circulation, will be issued by the American Heart Association, and distributed in this state through the North Carolina Heart Association, beginning January, 1953, as a further step in the development of its professional education program. Grune & Stratton, Inc., New York medical publishers who also publish *Circulation*, the monthly journal of the American Heart Association, will publish the new journal.

Circulation Research will be edited by Dr. Carl J. Wiggers, professor and director, Department of Physiology, Western Reserve University School of Medicine, Cleveland. Dr. Robert S. Alexander, associate professor of physiology at the same institution, will be assistant editor.

Circulation, which is in its third year of publication, will continue as a separate journal under the editorship of Dr. Thomas M. McMillan, Philadelphia. It will concentrate more fully on clinical problems and applied research, as distinguished from fundamental research in the cardiovascular field.

In announcing the new periodical, Dr. Irving S. Wright, president of the American Heart Association, said, "We are confident this new journal will be welcomed by the many physicians, investigators, and teachers who have long felt the need for an effective medium to integrate and disseminate new knowledge regarding fundamental problems which must first be solved before applied research can progress."

In addition to original papers on fundamental research, editorials on appropriate subjects and short preliminary reports on "research in progress" will be included. For the present, the new publication will not include reviews or abstracts. Manuscripts should be addressed to Dr. Carl J. Wiggers, editor, *Circulation Research*, 2109 Adelbert Road, Cleveland 6, Ohio.

Included on the editorial board is Dr. Eugene A. Stead of Duke University.

Research journal membership-subscriptions are available through the North Carolina Heart Association at \$10.50 per year. Membership-subscription privileges include the new bimonthly, *Circulation Research*, the monthly bulletin, *Modern Concepts of Cardiovascular Disease*, admission to the Association's annual Scientific Sessions, and voting membership in the North Carolina Heart Association.

Persons engaged in full-time research work may, upon application, obtain for their own personal use, a direct subscription to *Circulation Research* for a special rate of \$6.00, or a research journal membership-subscription, including Association membership privileges, for \$8.00.

Combined journal membership-subscriptions include *Circulation*, *Circulation Research*, *Modern Concepts of Cardiovascular Disease*, and admission to the Association's annual Scientific Sessions. These subscriptions may be obtained at the rate of \$19.00 per year. Payment of an additional \$1.00 entitles the subscriber to voting membership in the North Carolina Heart Association.

Journal membership-subscriptions for *Circulation* continue to be priced at \$13.00 per year in the United States, plus the \$1.00 for membership in the North Carolina Heart Association.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

The North Carolina Board of Medical Examiners will meet at the Robert E. Lee Hotel, Winston-Salem, North Carolina, January 19, 1953, at 9 a.m., at which time it will interview applicants for licensure by endorsement of credentials.

RALEIGH ACADEMY OF MEDICINE MEDICAL AND SURGICAL SYMPOSIUM

The diagnosis and treatment of cancer was discussed at the fourth annual medical and surgical symposium of the Raleigh Academy of Medicine held on Friday, November 7. Various aspects of the subject were presented in papers by Dr. Elmer Hess of Erie, Pennsylvania; Dr. Mavis Kelsey of the University of Texas; Dr. Emil Novak of Johns Hopkins University; Dr. George T. Pack of New York Medical College; and Dr. Milton Friedman of New York University. Dr. Kenneth Brinkhous of the University of North Carolina was moderator of a round table discussion on advances in the diagnosis of cancer, in which the other speakers participated.

Dr. Joseph J. Combs, president of the academy, welcomed the group and presided over the evening session, and Dr. William B. Dewar presided over the afternoon session.

NORTH CAROLINA CHAPTER OF THE AMERICAN COLLEGE OF CHEST PHYSICIANS

Dr. Leon Feldman was elected president, Dr. Ralph E. Moyer vice president, and Dr. Norman L. Anderson, secretary-treasurer of the North Carolina Chapter of the American College of Chest Physicians at its third annual meeting held in Asheville on October 23.

Included on the afternoon program were Dr. William M. Kennedy of Asheville, speaking on "Systemic Blastomycosis: Treatment with Stilbamidine"; Drs. Timothy Takaro and J. D. Murphy, Oteen, on "Pulmonary Blastomycosis: Treatment with Undecylenic Acid"; Dr. Thomas R. Huffines, Asheville, on "Genitourinary Tuberculosis"; Dr. Walter R. Johnson, Asheville, on "Tuberculous Enteritis"; and Dr. W. Spencer Schwartz, Oteen, on "A Review of the Newer Antibiotics in the Treatment of Pulmonary Tuberculosis."

Guest speaker at the evening session was Dr. David H. Waterman of Knoxville, Tennessee. The meeting concluded with a conference on x-ray conducted by Dr. G. W. Murphy of Asheville.

GASTON MEMORIAL HOSPITAL MEDICAL SYMPOSIUM

The medical staff of the Gaston Memorial Hospital, Gastonia, is sponsoring a Medical Symposium to be held on December 10, 1952, at the Masonic Temple, Gastonia. Dr. George Crile, Jr., of the Cleveland Clinic, Cleveland, Ohio, is the guest speaker, and his subjects will be: "Treatment of Peptic Ulcer" and "Diseases of the Thyroid."

The meeting will consist of an afternoon session beginning at 4:00 p.m., dinner at 7:00 p.m., and an evening session at 7:30 p.m. All physicians in North and South Carolina are invited to attend.

NORTH CAROLINA STATE BOARD OF HEALTH

The Public Health Statistics Section of the North Carolina State Board of Health has announced that 54 residents of this state died during 1951 who had passed the one hundredth birthday. Of this number, 4 were white males, 12 white females, 11 colored males, and 27 colored females. When a tabulation by color only is made, it is seen that 16 white and 38 colored reached or passed the century mark before death.

The age-color specific mortality rate is higher for every age group in the Negro than in the white up to the 75-84 age group. The death rate in the group 75 and above is higher in the white race. This lends strong support to the fact that more Negroes reach the century mark before death, statisticians believe.

EIGHTH DISTRICT MEDICAL SOCIETY

The fall meeting of the Eighth District Medical Society was held at the Sheraton Hotel in High Point on October 16. Speakers and their subjects were: Dr. James Gilliam of High Point, "Injuries of the Urinary Tract"; Dr. Eben Alexander of Winston-Salem, "The Treatment of Severe Cerebral Trauma"; Dr. Edward P. Benbow of Greensboro, "Recent Ideas in the Treatment of Poliomyelitis Patients"; Dr. David Cayer of Winston-Salem, "The Diagnostic and Research Aspects of Liver Biopsy"; and Dr. Nathan Womack of Chapel Hill, "Cholecystitis."

Officers for the meeting were Dr. George Wood, president; Dr. Glenn Perry, vice president; and Dr. Jack Lynch, secretary-treasurer.

FIFTH DISTRICT MEDICAL SOCIETY

The fall meeting of the Fifth District Medical Society was held at North Carolina Sanatorium, McCain, November 13, 1952. The following program was presented: "Present Day Use of Antibiotics," Dr. Samuel P. Martin, Durham; "The X-ray Diagnosis of Lesions of The Gastrointestinal Tract," Dr. Cyrus L. Gray, High Point; "Dyspnea As A Symptom of Anxiety State," Dr. James V. Warren, Durham; "Preventable Maternal Deaths," Dr. James F. Donnelly, Winston-Salem.

A discussion of the papers followed by a business session was held at the conclusion of the afternoon session, and a dinner meeting featuring an address by Dr. J. Street Brewer brought the meeting to a close.

SEVENTH DISTRICT MEDICAL SOCIETY

The Seventh District Medical Society met in Lincolnton on October 29, Dr. Clem Ham presiding. The following scientific program was presented at the afternoon session: "Congenital Heart Disease: Its Clinical Recognition and Surgical Treatment," Dr. C. Glenn Sawyer, Winston-Salem; "Preventive and Curative Medicine for North Carolina," Dr. J. W. R. Norton, Raleigh; "The Role of the Pathologist in the Non-Teaching Hospital," Dr. J. O. Williams, Concord; "Advances in the Field of Plastic Surgery," Dr. Herbert Conway, professor of surgery, Cornell Medical Center, New York; a radiology clinic, with Dr. W. C. Sternbergh of Charlotte as moderator, and other Seventh District radiologists participating.

At a banquet held at the North State Hotel that evening, President J. Street Brewer brought greetings from the Medical Society of the State of North Carolina, and Dr. Herbert Conway spoke on "Plastic Surgery in New York City One Hundred Years Ago."

SIXTH DISTRICT MEDICAL SOCIETY

The meeting of the Sixth District Medical Society of North Carolina was held on October 8, 1952, at State Hospital, Butner. Approximately 125 doctors attended the meeting. Dr. Fred G. Patterson presided.

Speakers at the afternoon session were Dr. J. Vincent Arey, Dr. J. W. Murdoch, Dr. William C. Sealy, Dr. Isaac Taylor, Dr. Ernest Craige, and Dr. William H. Freeman. The evening session consisted of talks by Dr. Ernest H. Wood and Dr. Edward C. Curnen.

New officers of the society are Dr. H. B. Kernodle, president; Dr. O. S. Goodwin, vice president; Dr. William C. Sealy, secretary-treasurer.

IREDELL-ALEXANDER COUNTIES MEDICAL SOCIETY

The Iredell-Alexander Counties Medical Society held its regular monthly meeting at Statesville on the night of October 14, with President Creighton Wrenn presiding. Drs. Tom G. Thurston and John E. Wear gave a program on "Radiological Aids in Diagnostic Procedures."

Five new physicians were elected to membership into the society, and one was received by transfer. They are as follows:

Drs. James Henry Carnelley, (by transfer, Alamance-Caswell Counties), Stearns Building, Statesville; Eston Robert Caldwell, Jr., Davis Hospital, Statesville; Louis Augustus Gleitsman, Davis Hospital, Statesville; Wesley Calhoun Palmes, Davis Hospital, Statesville; Harry Gordon Walker, Statesville, and Victor H. Prusa, Alexander County Hospital, Taylorsville.

FORSYTH COUNTY MEDICAL SOCIETY

Dr. Richard L. Masland, associate professor of neurology of the Bowman Gray School of Medicine of Wake Forest College, addressed the Forsyth County Medical Society on "Clinical Aspects of Encephalography" at its regular monthly dinner meeting held on October 14.

EDGECOMBE-NASH MEDICAL SOCIETY

Dr. John E. Dees of Duke University spoke on "Certain Aspects of Chronic Urethritis and Trigonitis in the Female" at the October meeting of the Edgecombe-Nash Medical Society. Dr. Adam Thorp was program chairman for the meeting.

NEWS NOTES

Dr. Charles I. Lahser has announced the opening of offices in Gastonia. His practice will be limited to infants and children.

MEDICAL COLLEGE OF SOUTH CAROLINA

The Medical College of South Carolina held a post-graduate seminar and Founder's Day program, November 5-7. All speakers on Founder's Day, November 6, were alumni of the college.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The nineteenth annual meeting of the American College of Chest Physicians will be held at the Hotel New Yorker, New York City, May 28-31, 1953.

Physicians who wish to present papers at the meeting should submit titles and abstracts to Dr. Arthur M. Olsen, chairman, Committee on Scientific Program, American College of Chest Physicians, Mayo Clinic, Rochester, Minnesota.

AMERICAN DIABETES ASSOCIATION, INC.

The American Diabetes Association offers a \$250.00 prize to medical students and interns for a paper on any subject relating to diabetes. The paper can be a report of original studies, a biographical or historical note, a case report with suitable comment, or a review of the literature.

This incentive is particularly apropos in the field of diabetes, since Dr. Paul Langerhans made his studies of the pancreas, describing the islets that bear his name, while he was an undergraduate student in Berlin in 1869; and Dr. Charles H. Best, while a graduate student, was co-discoverer of insulin in 1922.

Manuscripts must be submitted on or before April 1, 1953, to the editorial offices of *Diabetes*, the Journal of the American Diabetes Association, 11 West 42nd Street, New York 36, New York. The papers will be reviewed by the editorial board, which will take into consideration the value of the material and method of presentation in selecting the best paper.

The award of \$250.00 has been made possible through the generosity of the St. Louis Diabetes Association, an affiliate of the American Diabetes Association.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

Plans are being made to present two half-hour network television shows covering high points of the American Medical Association's sixth annual clinical session in December. Originating from Denver, the telecasts will highlight session activities, including presentations of new surgical and clinical demonstrations, special scientific exhibits, and other interesting medical features. The programs will be of interest to physicians who cannot attend the meetings as well as to the general public.

Present plans call for coast-to-coast coverage on two different nights during the meeting, December 2-5. Once again the programs are being sponsored by Smith, Kline and French, Philadelphia pharmaceutical firm.

* * *

"Widening the Highway to Health" will be the theme of the eighth national Conference on Rural Health to be held February 27-28 at the Roanoke Hotel, Roanoke, Virginia. The day preceding the general sessions (February 26) will be devoted to an informal get-together of physicians, who are responsible for rural health programs in their respective states, to discuss "Doctor Participation in Community Programs."

The subject of financing rural medical care will be covered at Friday's sessions. An experience-and-accomplishment program to stimulate thought on "What Can I Do When I Get Home?" will be presented the last morning. The final luncheon speaker will tell what medicine is doing, in cooperation with other organizations and groups, to help America solve its health problems.

* * *

The AMA's fifth annual National Medical Public Relations Conference will be held Monday, December 1—the day before the opening of the Clinical Session—at the Shirley-Savoy Hotel, Denver. Theme of the one-day meeting will be "Mutual Understanding—the Key to Better Public Relations." The Conference program will be geared primarily for physicians. Members of the House of Delegates, officers of state and county medical societies, officers of the Association, executive secretaries and public relations personnel are cordially invited.

* * *

An eight-week radio transcription series on rural health entitled "Help Yourself to Health" was released October 15 by the AMA's Bureau of Health Education to state and county medical societies. The series consists largely of true stories about small American communities which have successfully solved their health problems through local initiative and effort. Each program runs 15 minutes.

Covered in the series are such vital topics as "How Small Towns Can Get a Doctor," "How Small Towns Can Keep a Doctor," "Training Rural Doctors," "Working Together for Health" (health councils) and "Projects for Your Health Council." The theme that "self-help is the American way" runs throughout the programs.

* * *

The American Medical Association has joined with the U.S. Public Health Service, the U.S. Bureau of Animal Industry, the American Public Health Association, and the American Veterinary Medical Association in sponsoring a National Conference on Trichinosis. The meeting is scheduled for December 12 at AMA Headquarters, Chicago.

* * *

Outstanding leaders in medicine and medical education will be featured on the program of the 1952 annual session of the House of Delegates of the Student American Medical Association December 29-30 at the Sheraton Hotel, Chicago.

Dr. Walter C. Alvarez, Chicago, will speak December 30 on "The Disappearing Art of Diagnosing with the Eyes and Ears." John Van Nuys, M.D., dean, Indiana University School of Medicine, will be the principal luncheon speaker the same day, discussing "A Dean and His Problems."

Also included on the intensive two-day schedule will be a luncheon given by the Blue Shield Medical Care Plans and a buffet supper by Abbott Laboratories of North Chicago.

* * *

Two British films—"Some Aspects of Cancer-Skin" and "Some Aspects of Cancer-Rectum"—are now available from the AMA's Committee on Medical Motion Pictures. The films are suitable for professional meeting only.

AMERICAN ACADEMY OF GENERAL PRACTICE

A significant award unique in medical journalism has been bestowed upon GP by the American Institute of Graphic Arts, Mac. F. Cahal, publisher of GP, announced recently. The awards, made annually to outstanding magazines by the Institute, were made public at the opening of an exhibition of the honored publications in the Main Gallery of the Artists Equity Building in New York City. Selection of winners has been made from leading magazines in the nation, including many medical magazines.

Certificates were presented to each winner from the Institute. The certificate given GP cites this medical magazine for its excellence in graphic presentation. Typical pages from GP have been selected to go into the brochure which will be distributed nationally as a tribute to the chosen magazines.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY

The first annual clinical session of the American Academy of Obstetrics and Gynecology will be held December 15-17 at the Palmer House, Chicago.

Election of officers will take place at the annual business meeting Tuesday morning.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

The National Foundation for Infantile Paralysis announces the availability of a limited number of postdoctoral fellowships in the field of public health and preventive medicine. The purpose of these National Foundation fellowships is to prepare physicians to fill the many vacancies existing in public health and preventive medicine, with priority to those who are interested in entering the teaching field.

The fellowships are for one or more years at an approved school of public health, with a period of field experience when arranged by the school. Stipends to Fellows are based on the individual need of each applicant. Fellowships may cover tuition, maintenance and an allowance for books, if required. An appropriation of \$330,600 in March of Dimes funds has been made to cover the cost of the program.

Complete information concerning qualifications and applications may be obtained from the Division of Professional Education, the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

CLINICAL CONFERENCE OF THE CHICAGO MEDICAL SOCIETY

March 3, 1953, will mark the opening day of the ninth annual Clinical Conference of the Chicago Medical Society. This conference is designed to be of interest to both the specialist and the general practitioner. It will be held at the Palmer House in Chicago and will present a variety of subjects setting forth the latest information available to the medical profession.

Conducting the conference will be a faculty ranging from 35 to 40 outstanding speakers, each offering a presentation relating to their specialty. In addition, another group will give daily teaching demonstrations which will include the presentation of patients. They will emphasize the actual technique to be employed in handling orthopedic, medical, and pediatric problems. In addition to these daily demonstrations, there will be a panel discussion at a round table luncheon presenting topics of timely interest.

This is an activity of the Chicago Medical Society for its membership to whom no fee is charged. Those who are not members of the Chicago Medical Society are asked to register for the four days at the nominal fee of \$5.00.

AMERICAN MEDICAL WRITERS' ASSOCIATION

The American Medical Writers' Association at its ninth annual meeting held in St. Louis October 1, accepted a gift in excess of \$2,000 from Harold Swanberg, M.D., Quincy, Illinois, secretary of the association, to establish an "Honor Award for Distinguished Service in Medical Journalism." In accepting the gift it was specified that the award (a plaque) be given each year at the Association's annual meeting, "for accuracy, clarity, and conciseness of published articles, editorials and other material, and/or distinguished and meritorious service, rendered by a United States or Canadian medical periodical." The award is akin to the Pulitzer Prize in Journalism, which is given annually for meritorious public service rendered by a United States newspaper.

Nominations for the award must be made in writing and accompanied by an exhibit, in scrapbook form, of supporting material as published during the preceding year, with dates of publication. Nominations must be made on or before February 1 of each year, addressed to the Secretary, American

Medical Writers' Association, (W.C.U. Building, Quincy, Illinois). All nominations will be evaluated by a special review committee who submit recommendations to the Association's Awards Committee, who makes the actual selection of the winner. No medical periodical may receive the award more than once in a decade.

This is believed to be the first award of this type to be established in North America and both the donor and the Association hold it will further aid in carrying out the principal object of the Association—"to help maintain and advance high standards of medical literature."

* * *

New officers of the American Medical Writers' Association following the recent meeting in St. Louis include Dr. Lewis J. Moorman, president; Dr. Jacob E. Reisch, president-elect, and Dr. Harold Swanberg, secretary-treasurer.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The November issue of the Mississippi Valley Medical Journal and Radiologic Review is the Fifth Annual "Radiation Therapy Number" of that publication. This special issue is limited to original, practical papers on radiation therapy contributed by leading specialists. All the papers have been especially written for this number and are designed to appeal to physicians in the general practice of medicine and surgery.

This is the only medical journal publishing a special number in this special field of therapy. It is especially designed to help keep non-radiologists informed of the advances being made in this specialty. The papers are well written and reasonably short and practical, and should arouse in the general profession a greater appreciation of the accomplishments of radiation therapy.

INSTITUTE OF INDUSTRIAL HEALTH

The Institute of Industrial Health of the University of Cincinnati will accept applications for a limited number of fellowships offered to qualified candidates who wish to pursue a graduate course of instruction in preparation for the practice of industrial medicine. Any registered physician who is a graduate of a Class A medical school and who has completed satisfactorily at least two years of training in a hospital accredited by the American Medical Association may apply for a fellowship in the Institute of Industrial Health. (Service in the Armed Forces or private practice may be substituted for one year of training.)

Requests for additional information should be addressed to the Institute of Industrial Health, College of Medicine, Eden and Bethesda, Cincinnati 19, Ohio.

BOYER APPOINTED TO A. C. C. P. COMMITTEE

Dr. Philip A. Boyer, associate medical director of Schenley Laboratories, Inc., has been appointed a member of the Committee on Resident Fellowships of the American College of Chest Physicians, according to an announcement by Dr. Andrew L. Banyai, president of the medical group.

Purpose of the committee is to establish fellowships in the United States for physicians from other countries. Governors and regents in 63 countries where there are College members are cooperating in the program.

Dr. Boyer, who received his medical degree from the University of Pennsylvania in 1940, has been associate medical director of Schenley Laboratories since June, 1951. He was formerly associated with Lederle Laboratories.

DEPARTMENT OF THE ARMY

The 8055 Mobile Army Surgical Hospital, the first of its kind in Korea, has just treated and evacuated its fifty-thousandth battle casualty.

The 200-bed mobile hospital, organized two weeks after the outbreak of the Korean war, has been at its present location, just behind the front lines, since last October. Helicopters and ambulances have brought in wounded troops from American, Korean, British, Canadian, Australian, New Zealand, Filipino, Turkish, Colombian, Ethiopian, Thai, French, Netherlands, Belgian, Luxembourg, and Greek units. Hospital personnel take pride in the amazing patient recovery rate of 99.8 per cent.

* * *

A study that will include all of the Army's large hospitals was launched by prominent civilian specialists in medicine, surgery and psychiatry October 20 at Fitzsimons Army Hospital, Denver, Colorado, according to Major Gen. George E. Armstrong, Army Surgeon General.

The teams were organized by Dr. Joseph M. Hayman, Jr., of Cleveland, consultant to the Surgeon General in internal medicine. Each group will evaluate the training programs set up for both interns and resident physicians and the part taken by the regular staff and consultants in training younger men.

Their studies will cover ratio of patients to intern and residents, and degree of their responsibility, the adequacy of supervision, teaching rounds and conferences, record of trainees with specialty boards, qualifications of training officers and comparison of regular staff and consultants in relation to the training program.

FEDERAL SECURITY AGENCY

Public Health Service

Yellow fever vaccine, heretofore produced exclusively by the Public Health Service, will be manufactured in the future by a nationally known pharmaceutical firm, it was announced recently by Surgeon General Leonard A. Scheele of the Public Health Service. Dr. Scheele's announcement was made jointly with the National Drug Company of Philadelphia and the Armed Services Medical Procurement Agency.

Withdrawal of the Government from yellow fever vaccine production is in accord with Public Health Service policy of turning over to the pharmaceutical industry the manufacture of biologic products once large-scale production becomes feasible.

The Surgeon General pointed out that manufacture of the vaccine by the National Drug Company does not alter the regulations governing distribution. All eligible consumers now receiving the vaccine may continue to do so. Clinics issuing yellow fever vaccine certificates are designated by the Public Health Service in accord with the international sanitary regulations of the World Health Organization. Vaccination certificates must be obtained by travelers from a designated clinic in order to be valid for international travel.

* * *

An expanded Visiting Scientist Program at the National Institutes of Health in Bethesda, Maryland, has been announced by Surgeon General Leonard A. Scheele of the Public Health Service, Federal Security Agency. Under this program, research workers with demonstrated ability and specialized training are invited to conduct their investigations at the Public Health Service's laboratories in Bethesda for periods of time ranging from a few weeks to two years.

* * *

Dr. Joseph F. van Ackeren was appointed Chief Medical Officer of the Coast Guard effective October 1, 1952. Dr. van Ackeren succeeds Dr. Paul M. Stewart, who has reached the age of mandatory retirement.

(BULLETIN BOARD CONTINUED ON PAGE 644)

BOOK REVIEWS

Correlative Cardiology: An Integration of Cardiac Function and the Management of Cardiac Diseases. By Carl F. Shaffer, M.D., F.A.C.P., Associate Professor of Clinical Medicine, Baylor University College of Medicine; and Don W. Chapman, M.D., F.A.C.P., Associate Professor of Medicine, Baylor University College of Medicine. 525 pages, illustrated. Price, \$9.50. Philadelphia and London: W. B. Saunders Company, 1952.

The most interesting aspect of this book is its method of presentation: the outline form is followed throughout. The work was designed by the authors to correlate the phases of anatomy, physiology, pathology, and abnormal or pathologic physiology which pertain to the diagnosis of cardiac disease. They have achieved their purpose in simple, concise statements coupled with diagnostic illustrations, thus enabling the student to comprehend more easily the manifestations of normal and abnormal cardiovascular systems.

However, the use of the outline form in a book such as this has one serious limitation. Various attitudes cannot be adequately presented, and dogmatism inevitably results. From the student's point of view, therefore, the book cannot adequately replace existing texts on cardiology.

The Old Egyptian Medical Papyri. By Chauncey D. Leake, Ph.D. University of Texas. (The Logan Clendening Lectures on the History and Philosophy of Medicine, second series.) 108 pages. Price, \$2.00. Lawrence, Kansas: University of Kansas Press, 1952.

The eight Egyptian medical papyri now extant have been the subject of a great deal of interest, both for their content and their style. Dr. Leake, who is primarily a pharmacologist professionally, has been working with one of them, the Hearst Medical Papyrus, for some time. The present small volume presents his lectures on the subject in the second of a memorial series endowed by Mrs. Logan Clendening, widow of the well known Kansas internist and devotee of belles lettres.

The subject matter is concerned with a review of the medical papyri, an evaluation of weights and measures in them, and of Egyptian therapeutics. In addition, Dr. Leake deals specifically with his personal specialty, the Hearst document. An appendix gives a list of prescriptions in that work.

The pharmacology of ancient Egyptian medicine was an extensive one, and it has received a great deal of attention through antiquity to the present time. Gradually, those who have studied the subject have realized that the trend of Egyptian medicine away from magic and toward empirical and rational observation is well demonstrated in its pharmacology. Dr. Leake brings home this view in his lectures, and supports it in a variety of ways. His recent studies of Egyptian volume measurements and drug dosages receive some attention, and an amusing note is that later Egyptian volumes declined absolutely in the face of increased commerce and inflation.

Those who are casually interested in the history of medicine will enjoy skimming through this book. Readers who are interested in special problems will find new analyses and facts in it. The volume makes an excellent companion to Henry Sigerist's general consideration of Egyptian medicine in the first volume of his *A History of Medicine*.

Physiological Bases of Gynecology and Obstetrics. By S. R. M. Reynolds, Ph.D., D.Sc. 156 pages. Price, \$5.50. Springfield, Illinois: Charles C Thomas, Publisher, 1952.

This is a relatively short collection of lectures concerning the fundamental principles of physiology of the uterus which are covered in a much more intensive fashion than in the author's textbook on *Physiology of the Uterus*.

The material is presented in a simplified manner so that it can be readily understood. A recommended supplementary reading list is included, although no bibliography is given. Anyone interested in detailed information should seek it in the other book.

The author's main point is stated in the first chapter, in which he points out three factors of primary interest: (1) uterine growth, (2) uterine motility, and (3) uterine vascularity. He returns again and again to the thesis that these factors are interrelated and interdependent.

For anyone interested in the field of obstetrics and gynecology, this is not only an interesting but an instructive book in regard to the most fundamental physiologic viewpoints.

Gynecologic and Obstetric Pathology with Clinical and Endocrine Relations. By Emil Novak, M.D., D.Sc. Ed. 3. 595 pages with 630 illustrations, 19 in color. Price, \$10.00. Philadelphia and London: W. B. Saunders Company, 1952.

This book needs no review since it has been the most popular book on the subject for many years. The author has revised many of the previous sections and added considerable new material, thus bringing it up to date.

Many new and interesting plates, both color and black and white, are included. The book is a "must" for the practitioner of obstetrics and gynecology, and for the general surgeon. It is also an essential requirement for the medical student.

Pardon My Sneeze. By Milton Millman, M.D., Fellow of the American Academy of Allergy, Member of the American College of Allergists. 217 pages with several illustrations. San Diego: Frye & Smith, 1952.

This book is of interest to the physician devoting his time to allergy, of greater interest to the general practitioner, but of greatest value to the allergic individual and to those in charge of his care.

Along with Dr. Millman's experience in the practice of allergy, he seems to have acquired the ability to write so that the patient can understand and benefit from the contents of this book. The chapter on "Nervousness and Allergy" particularly has been presented in such a way as to be understood by such sufferers. Chapter 21, on "Common Food Contacts," though somewhat long, should be of inestimable value to the general practitioner and to the patient.

This is a book that will be of interest and help to any doctor or layman who is interested in allergy.

In Memoriam

Lewis R. Gaskin, M.D.

Dr. Lewis R. Gaskin was born in Kershaw County, South Carolina, January 11, 1896. He was graduated from the University of South Carolina in 1917 and obtained his M.D. degree from the Medical College of South Carolina in 1921. He engaged in general practice in Mt. Crogham, South Carolina until 1925. In April, 1925, Dr. Gaskin moved to Albemarle, North Carolina, where he continued in general practice until the time of his death, June 9, 1952.

Dr. Gaskin married Miss Ruth James September 26, 1922, and from this marriage there were four children—Erleen, E. Reed, Ann, and Lewis J. In January, 1938, Dr. Gaskin married Betty Barrett Palmer.

Dr. "Lewis," as he was usually called, was a hard-working, zealous practitioner who took an active interest in the affairs of the medical societies and in the hospital. He devoted much time and his talents to the work of the Baptist church, of which he was a member. At the time of his death he was chief of the Stanly County Hospital Medical Staff.

Resolution

Whereas, The Stanly County Medical Society has suffered a severe loss in the untimely death of Dr. Lewis R. Gaskin, who succumbed to a sudden heart attack on June 9, 1952,

Therefore, Be it resolved by the members of the Stanly County Medical Society, that the accompanying biography, as well as this resolution expressing deep regret at the loss of their colleague and extending sincere sympathy to the family of the deceased, be made a part of the minutes of the said society as a testimonial of the honor and esteem which the members of the society hold of the memory of Dr. Lewis R. Gaskin.

Dated this seventh day of October, 1952, at Albemarle, N. C.

Resolutions Committee:
DENNIS B. FOX, M.D.
T. F. KELLEY, M.D.
W. L. McLEOD, M.D.

Joseph Ward Hooper, M.D.

Whereas it hath pleased Almighty God, our Heavenly Father, in His infinite wisdom to call our eminent colleague and faithful member, Dr. Joseph Ward Hooper, from a life of devoted service to his fellow man in this world, to a richer fuller service in the world beyond the grave, and

Whereas the New Hanover County Medical Society is deeply conscious of the great loss that has been sustained by the Society, in which his place cannot easily be filled, and by this entire community where his expert surgical skill, coupled with a keen and wise judgment, has served his countless patients for many years, and

Whereas the memory of Dr. Hooper will long live on in this community as a skilled surgeon and a loyal co-worker and friend,

Be it resolved the New Hanover County Medical Society, in meeting assembled will go on record in deep appreciation of the life and works of Dr. Hooper, and

Be it further resolved that a copy of these resolutions be sent to the family of Dr. Hooper, to the local press, to the North Carolina Medical Journal, and a copy be kept in the permanent record of the Society.

JOHN B. CRANMER, M.D.
Chairman

S. Everett Koonce, M.D.

Whereas it hath pleased Almighty God to call unto Himself His faithful servant and our valued member and co-worker, Dr. S. Everett Koonce, and

Whereas the New Hanover County Medical Society has a deep sense of the great loss to the Society in the passing of Dr. Koonce, who was one of its most faithful members, and to this whole community where, during his long years of practice, he gave so freely and conscientiously of his talents, first as a practicing physician and later as an expert eye, ear, nose, and throat specialist, and

Whereas it is a matter of deserved record that Dr. Koonce's long life of earnest endeavor from 1896 to 1908, first in Jones County and later in Wilmington as a general practitioner, and again in his specialty in Wilmington from 1908 until his retirement in 1948, has set an example of honest, faithful service, long to be remembered

Therefore, be it resolved that a copy of these resolutions be sent to the family of Dr. Koonce, to the local press, to the North Carolina Medical Journal, and a copy placed in the permanent records of the New Hanover County Medical Society.

JOHN B. CRANMER, M.D.
Chairman

BULLETIN BOARD

(CONTINUED FROM PAGE 613)

Further expansion of occupational health services in industry to conserve the health of American manpower was urged by the Advisory Committee to the Public Health Service on Occupational Health at its annual meeting in Washington, D. C. in October.

The committee called attention to the fact that 85 per cent of American workers do not have the benefit of occupational health services. It revealed that sickness absenteeism in industry accounts for a loss equivalent to 2,000,000 workers off the job every day.

The committee recommended that the Public Health Service increase its activities with management and labor, physicians and the other health professions, and the general public to bring about wider understanding.

* * *

Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, announced recently the appointment of Doctor David E. Price to the newly created post of Assistant Surgeon General.

Doctor Price has been Associate Director of the National Institutes of Health, research branch of the Service, for the past two years. In his new assignment, he will assist the Surgeon General and the Deputy Surgeon General in the administration of the Public Health Service.

Winthrop-Stearns Introduces Potent Antispasmodic Agent

A potent antispasmodic for use in the treatment of parkinsonism (Parkinson's disease) has been introduced nationally by Winthrop-Stearns, Inc., according to Dr. Theodore G. Klumpp, president.

The preparation, called Pipanol hydrochloride, combines an unusually high degree of clinical effectiveness with a complete absence of side effects in the great majority of cases. It is indicated in parkinsonism whether of postencephalitic, idiopathic, or arteriosclerotic origin, it has been shown by pharmacologic and clinical studies covering a three year period. Pipanol hydrochloride has proven especially valuable in arteriosclerotic parkinsonism, because, unlike atropine, it does not appear to precipitate glaucoma.

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THE GROWTH OF SCHOOL CHILDREN AS AN INDEX OF UNDERNUTRITION IN THE COMMUNITY

A. HUGHES BRYAN, M.D.

CHAPEL HILL

In this paper we shall be concerned with plans to meet an emergency which we sincerely hope may never develop in any part of this country, or ever again elsewhere in the world: the problem of an inadequate food supply resulting from enemy action, with consequent serious undernutrition. As a part of civil defense planning, it is necessary to evaluate the means at our disposal of appraising the effects of a limited food supply upon the health of the population. The medical literature following the last two great world wars contains much pertinent information. It is not my purpose, however, to review this rather extensive body of knowledge, but rather to examine carefully one of the most useful indices of undernutrition—retardation of growth in children of school age.

In the event of a sudden and unexpected act of war, some parts of our country might suffer an immediate food crisis, to be followed later by a more or less prolonged shortage of food supplies. During this period—which might last for years, as it has in other countries—we can expect that food will be rationed and provision made to meet the nutritional needs of such priority groups as children, pregnant women, workers in essential industries, the sick, and the injured. In these circumstances the health officer must have at his disposal means for collecting objective evidence that all segments of the population are receiving food enough and of the right kind. The health authorities will be asked again and again whether or not

strength, vigor, and the ability to wage total war are being undermined by an inadequate food supply or an inept rationing system. In gathering information with which to answer this important question, it will be necessary to employ more than one index of undernutrition and to take into account all facts which have a bearing on the question.

Means of Appraising the Effects of A Limited Food Supply

The experiences of other countries in previous wars indicate that the following lines of approach, if carefully followed, will lead to information of importance in assessing the effect on health of a limited food supply. In applying these methods it is well to remember that an evaluation of the changes revealed by repeated observations is often of more importance than the result of a single careful survey. Trends will demand our attention, and we will be asked whether the food situation is improving or deteriorating.

1 *Food consumption studies.* These consist of statistical analyses of the kinds and amounts of food consumed by representative samples of the population.

2 *Medical evaluations.* Under this heading are included such techniques as physical examinations to reveal the presence of malnutrition in segments of the population, studies of the prevalence of various diseases in the community, and an analysis of the causes which induce people to seek medical care. Biochemical studies of blood and urine may also be of assistance.

3 *Measurements of height and weight.* In the case of adults, trends in the average weights of representative samples appear to reflect changes in their caloric intake⁽¹⁾. This

Read before the Section on Public Health and Education, Medical Society of the State of North Carolina, Pineburst, May 7, 1952.

From the School of Public Health, University of North Carolina, Chapel Hill.

relationship may be disturbed if edema becomes prevalent. Children of school age respond to the privations of war with a decrease in their rate of growth, which is reflected in both their weights and their heights. This phenomenon of growth retardation, which was observed in many countries during both world wars, offers a useful and fairly sensitive index of undernutrition in the population. The remainder of this paper will be devoted to a critical study of this index.

The Effect of Undernutrition on the Growth of Children

A review of the literature on the changes in heights and weights of European children during the two world wars is contained in a recent comprehensive monograph on starvation⁽²⁾. Figures 1, 2, and 3 offer examples of the effect of undernutrition on the growth of school boys. Figure 1 presents graphs of the average heights and weights of 13 year old school boys in Oslo, Norway, for the period 1920 to 1947⁽³⁾. It will be noted that the years from 1920 to 1940 were characterized by a progressive increase in height and weight for age. This phenomenon, the secular increase in the growth rates of children, has occurred in many European countries and in the United States and Canada⁽⁴⁾, and is attributed to the gradual improvements in food supply, medical care, and social and environmental factors which have taken place in those countries since the turn of the century. Following the invasion of Norway in 1940 the progress of this secular change was interrupted; the averages for height show little further increase in 1943, 1945 and 1947, while those for weights of 13 year old Oslo school boys were actually less in 1943 and 1945 than in 1940. This abrupt change in trends is to be attributed to undernutrition and perhaps to other adverse factors growing out of the German occupation of Norway.

The data presented in figure 2A are for boys entering school in Berlin at the age of 6 to 6½, and in figure 2B for boys leaving school at the age of 13½ to 14, during the years 1924 to 1933. In the case of the 6 year olds, (fig. 2A), we observe an irregular increase in average height from year to year, followed by a tendency to form a plateau from 1930 to 1932. That conditions were not ideal for growth is indicated by the fact that the over-all increase in average height from

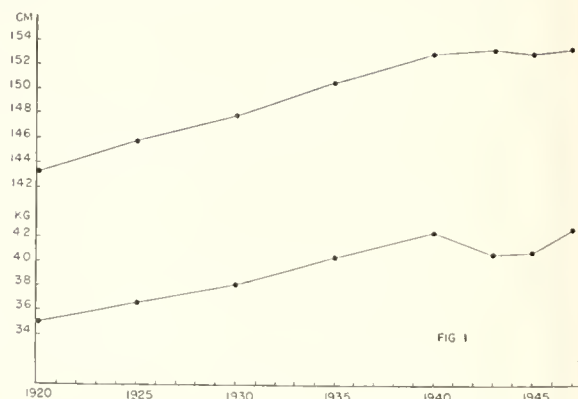


Fig. 1. Average heights and weights of 13 year old school boys in Oslo, Norway, from 1920 to 1947. Data from Strom⁽³⁾.

1924 to 1932 was accompanied by very little increase in average weight—in other words, 6 year old boys entering school became progressively thinner during that time.

Turning now to the height and weight curves for boys 13½ to 14 years old, (fig. 2B), we observe a secular increase in both average height and weight from 1925 to 1930, followed again by a plateau for the next two years, 1931 and 1932. Finally, there is a slight upward trend in both measurements in 1933. (In interpreting this data it should be noted that the measurements of the children were made in the spring of each year and hence record influences on growth which occurred during the previous year or years.)

I believe that we see reflected in these year by year changes in the growth of 6 and 13½ year old boys the results of the widespread unemployment and economic dislocation in Germany which arose partly as the aftermath of the first world war, and were in part associated with the worldwide depression in the years following 1929. However, Wolff, the German physician who reported these results, offered quite another explanation⁽⁵⁾. The boys who were 6-6½ years of age in 1924, 1925, and 1926, and those who were 13½-14 in 1931-1933, were born during the period of most serious food shortage in Germany—namely, 1917 to 1919. Wolff attributes their decreased stature at age 6 to the effects of undernutrition on their mothers and on themselves during their prenatal period and early infancy. Furthermore, Wolff does not believe that the depression caused much change in the heights and weights of the Berlin school children whose

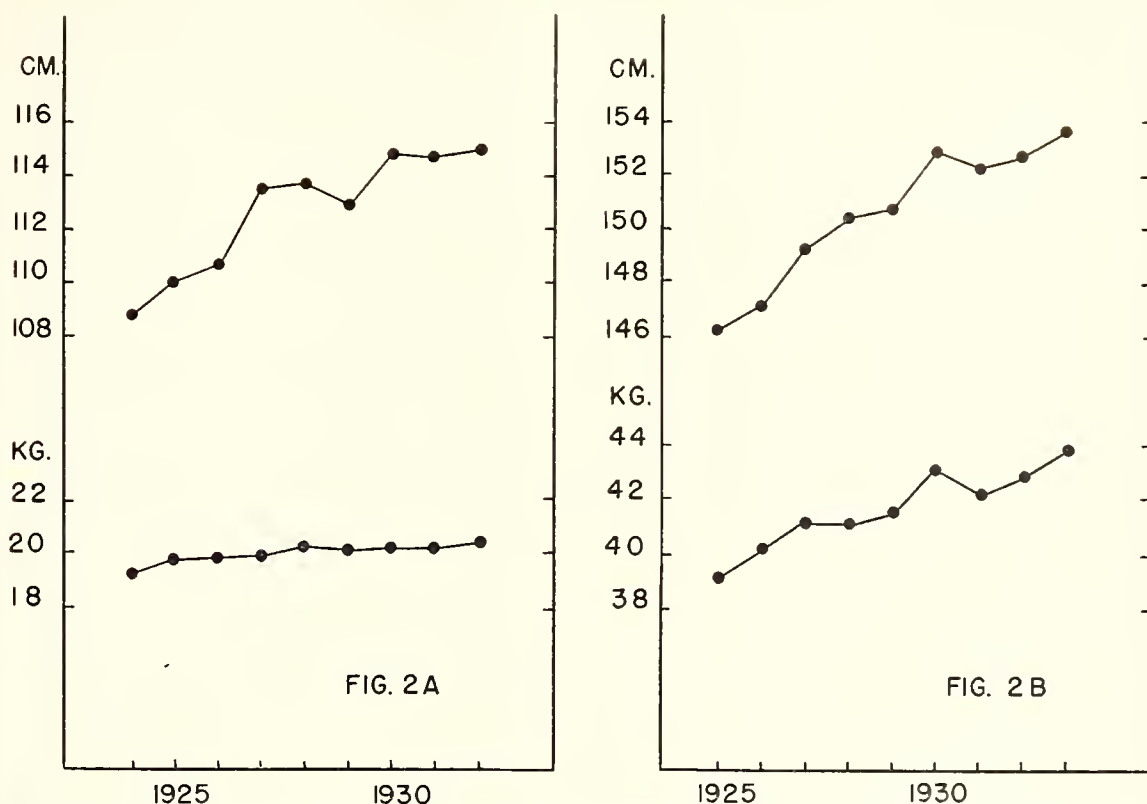


Fig. 2. A. Average heights and weights of boys entering school in Berlin at the age 6 to 6½ years from 1924 to 1932. Data from Wolff⁽⁶⁾. B. Average heights and weights of boys leaving school in Berlin at the age of 13½ to 14 years from 1925 to 1933. Data from Wolff⁽⁶⁾.

measurements are presented in this article. The explanation that I have adopted, however—namely, that there was an irregular secular increase in height and weight up to 1930, followed by a leveling off due to the depression, allows us to fit Wolff's data into the pattern of retardation of growth which is easily recognized in other studies of the effects of undernutrition in children.

Finally, figure 3 shows the effect of undernutrition resulting from war on a sample group of Finnish school boys. We are indebted to Dr. Timo Jaaskelainen for access to the original school cards of 144 boys, 7 to 13 years of age, who attended school in Reposaari, Finland, during the years 1935 to 1945. These cards record the results of periodic examinations and measurements during the school life of each child. We have selected for analysis only measurements made in the spring of each observation year in order to avoid the possible seasonal variations in growth⁽⁶⁾. Measurements are lacking for most of the boys in the springs of 1940

and 1943, and for this reason gaps appear in the graphs presented in figure 3.

Since the number of boys in the whole sample is small (144), the number in each class for each year becomes small indeed. For example, the number of 10 year old boys to be found in any one observation year is only 4 to 20. In order to avoid the irregularities which would occur if comparisons were based on such extremely small samples, we have utilized the statistical technique of covariance to calculate for each observation year a mean height and a mean weight based on all boys measured that year and adjusted to the age of 10½ years.*

*As used here, the covariance technique allows us to remove the effect of age on height and weight, and thus enables us to present adjusted averages of height and weight for each observation year which are based on all the data available for that year. However, covariance is not the statistical method of choice for a searching analysis of this data since (a) regressions of height and weight on age approach, but are not quite linear over the age span 7 to 13 years; (b) the variances of height and of weight are not homogenous over this wide age span; and (c) a cohort effect undoubtedly exists—children in the sample passed through the period of under-

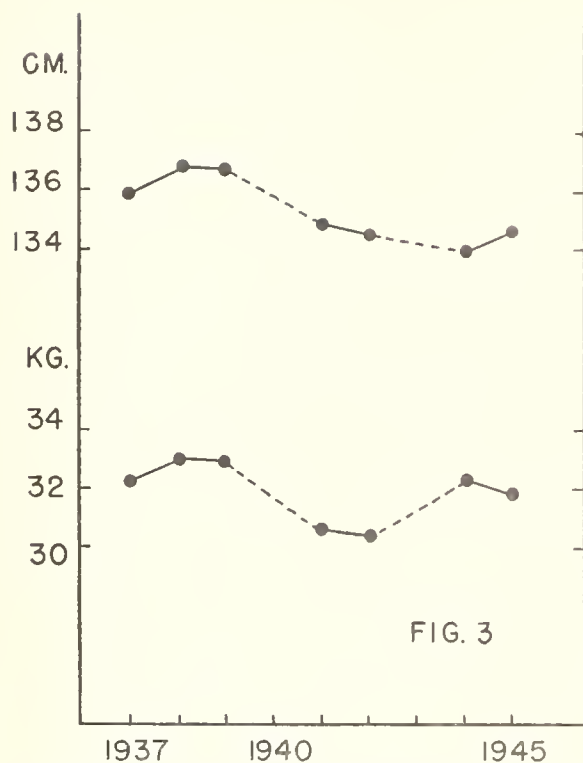


FIG. 3
Fig. 3. Average heights and weights adjusted to an age of 10½ years (see text) of boys in school in Reposaari, Finland, from 1937 to 1945.

The food supply in Finland was normal in the years 1937-1939, although sugar became scarce by the fall of 1939. Rationing began in 1940, and 1942 was the year of greatest food shortages. Rationing continued until 1948, but the food supply available to the people became better and better during the years 1945 to 1948⁽⁷⁾. Figure 3 shows the effects of the resulting undernutrition on the adjusted heights and weights of a sample of school boys in Reposaari. The retarded growth of the war years is clearly demonstrated.

Growth Retardation as an Index of Undernutrition

The first point to be discussed is the extent to which factors other than nutrition might account for the growth changes noted above. It is known, for example, that groups of children from different socio-economic backgrounds vary in their average stature

and weight, reflecting growth differences which may be attributed in part to differences in nutrition, but also to such factors as medical care, prevalence of ill health, and psychologic stresses. In our present state of knowledge it is difficult, in any given case, to assign relative values to the correlated factors which together condition the growth of children, and more research should be directed toward this end. In the meantime, the belief continues to receive wide acceptance that undernutrition is one of the most important factors in limiting the growth of children subjected to the stress of war.

The degree to which growth is interfered with appears to be in proportion to the severity of the nutritional defect. Thus the serious shortages which occurred in Germany and Austria during the first world war were associated with marked decreases in the average heights and weights of children⁽²⁾. More moderate changes in growth rates were observed in Oslo school boys in 1940-1945 (fig. 1); and in Britain, during the second world war, the still more favorable food supply was reflected in a general maintenance during the war years of pre-war standards of height and weight for age⁽⁸⁾. At most, decreases in average measurements occurred in 1940 and 1941 in some areas of Britain, mainly among older children, but the situation was generally rectified by 1943.

It is of interest to note that weight is a more sensitive indicator of undernutrition than is height, a quite general finding which is well illustrated in figures 1-3. The importance of a base line, a period of control observations antedating the years of food scarcity, is evident. In many cases, such as that portrayed in figure 1, this control period exhibits a secular increase in average weight and height for age, and if the undernutrition is not too severe, its main effect may be to interrupt these secular changes.

Questions for further research

Finally, there is need for more research on the changes in the growth of children which occur as a result of the privations of war, including a more penetrating statistical analysis of the data already collected. Answers should be sought to the following questions:

Questions for further research

1. If the food supply rapidly deteriorates, how soon can changes be detected in the growth rates of children? It would appear

nutrition, 1940-1944, at different ages and hence with different sensitivities to its effects. The second and third objections are more serious than the first. In collaboration with Dr. B. G. Greenberg we are carrying out a more suitable statistical analysis of the data kindly supplied by Dr. Jaaskeleinen.

that such changes might be observed during the first year of deprivation, but the matter requires more study.

2. At what chronologic ages are children most sensitive to the growth-retarding effect of malnutrition? The answer to this question would afford information of practical value in selecting samples of children for study with regard to the adequacy of the food supply during an emergency. We have found that children aged 8 to 11 show most clearly the influence of socio-economic factors on their growth⁽⁹⁾, and our first assumption is that those ages might be the most suitable ones to study in a food emergency. In the meantime, further investigation of this point is indicated.

3. Are the effects of undernutrition shown equally by boys and girls, or do sex differences exist? In this paper, in the interest of simplicity, we have presented only growth data derived from the study of boys. Both boys and girls suffer a retardation of growth when subjected to undernutrition. The fact that girls mature at an earlier age than boys must be borne in mind, however; and, at some ages at least, the effects of food scarcity on growth rates appear to be less striking in girls than in boys.

4. Any given population of children passes through the years of deprivation at different chronologic ages. The immediate and more lasting effects of this period of malnutrition upon their growth may vary according to the sensitivity inherent in their age at the time of exposure. This phenomenon, termed the cohort effect by the statisticians, should be carefully studied in future investigation. A better understanding of the cohort effect would be of great assistance to those seeking to interpret changes in the heights and weights of children who have endured a period of malnutrition.

5. A further question for statistical investigation is concerned with whether it is better, for the purpose of detecting undernutrition in children, to study trends in their attained heights and weights, or to analyze increments in these measurements.

Use of the Index in Civil Defense

We now come to a very practical matter, the use of changes in the average heights and weights of samples of school children as an index to the nutritional status of a community during a more or less prolonged emer-

gency. It has already been stated that this index would be only one of the means available to the health officer for observing the degree to which food shortages are undermining health. It should be used in conjunction with, and not in place of, such other methods as medical evaluations and food consumption studies. The index we are discussing is of particular value in emergencies of some duration, and has the advantage that the data on which it is based can be collected by other than trained medical personnel. It is taken for granted, of course, that the heights, weights, and ages of the children studied must be accurately recorded and the results analyzed by simple but adequate statistical techniques. The significance of small changes in average measurements must be accurately evaluated if the early effects of undernutrition are to be observed. This is a task requiring the combined efforts of health officers and statisticians.

It should be stressed that the index is concerned with *changes* in the average measurements of samples of children. This means that observations must be made on the same or comparable samples of children at regular intervals. It would be best to make these observations at the same season of the year in order to avoid seasonal variations in growth which would render interpretation more difficult. A base line of measurements of the same or comparable samples of children antedating the emergency will be necessary, especially since the effect of mild undernutrition may be only to interrupt the previous secular increases in group mean heights and weights.

Selection of subjects

The problem of selecting adequate samples of children for measurement will not be an easy one. Both race and socio-economic status modify the growth of children of school age⁽⁴⁾. In a community where the level of living varies from poverty to moderate wealth, and a mixture of races is found in the school population, the selection of suitable samples will require especial care. It must be remembered that the privations of war may not affect all strata of the community to the same extent. Some will suffer more, some less, and the delineation of the more vulnerable groups will be a matter of great importance in adjusting the ration to fit the needs of all of the population. Also, if trends in growth are to be studied, the same or comparable samples

must be available for examination at regular intervals, a consideration which further complicates the sampling problem. Fortunately, the determination and recording of height, weight, and age require little time; and the samples, therefore, need not be few or small.

In the event of enemy action we may expect migration away from areas of danger and into areas of comparative safety. The effect of these movements of groups of people will be to complicate greatly the sampling problem in some important areas. It will require considerable ingenuity to overcome or minimize this difficulty.

Interpretation of data

As the measurements are accumulated they must be interpreted; and to this task the health officer must bring not only the skills and knowledge of the statistician, but also a comprehensive understanding of the many factors in the local situation which may affect growth, as well as the accumulated experience of others who have studied growth and undernutrition in children. It will be important for him to recognize the first definite signs of retarded growth due to an inadequate food supply—when the situation has deteriorated to the extent that growth failure is marked, the shortage of food will have become so extreme as to be obvious to everyone. If well chosen, comparable samples of children show a significant decline in average weight for age, and particularly if they show also a decline in average height for age, it may be assumed that the ration is not adequate for these children. The probability of drawing a correct inference in such cases will be increased by taking into consideration other facts concerning the population and its food supply. While the presumption of undernutrition can be confirmed by the next series of observations of height and weight, one would scarcely suggest withholding remedial measures for such confirmation.

In many cases a negative result, the failure to observe a change in the growth rates of children when the food supply is limited, may be as important as a positive result. If food is scarce and rationing prevails, almost no one will be satisfied with his fare. Rumors of undernutrition will abound, and the morale of the community may well depend on a convincing and objective disclosure of the true state of affairs.

Summary

In the event of a prolonged food shortage occasioned by enemy action, questions will arise concerning the adequacy of the food supply to maintain health, vigor, and the ability to wage total war. One of the methods available to the health officer for assessing the extent of undernutrition in the population consists of the evaluation of trends revealed by periodic measurements of heights and weights of samples of children of school age. Retarded growth rates are presumptive evidence of an insufficient food supply or an inept rationing system, and this inference may be confirmed by the results obtained from other methods of studying the food situation and its effect on health. In this article are cited examples of the effects of undernutrition in limiting the growth of children. The use of such evidence as an index of undernutrition is discussed, and the need for further research along these lines is pointed out.

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Discussion

Dr. William P. Richardson (Chapel Hill): I would like to ask Dr. Bryan to comment on the advisability of accumulating data based on the information we now have to serve as a base line in the event of a restricted food supply.

Dr. Bryan: That is a good point, Dr. Richardson. We are going to need such data if a disaster occurs. Of course, much of our present data on weights, heights, and so forth is unreliable.

Dr. S. B. McPheeters (Goldsboro): In view of that comment, would you regard the weights and heights of children taken by school teachers as reliable data?

Dr. Bryan: In some cases I would, but in others I would question their accuracy. One would have to use the best data available.

Dr. A. H. Elliott (Raleigh): From your knowledge

of the study cited, what would you say about the effect of a limited food supply on teeth? Near the end of the depression, a dentist remarked that children had better teeth than in normal times because they were unable to buy candy.

Dr. Bryan: That is an interesting point. Other observers have reported that in areas of malnutrition the incidence of dental caries, for one reason or another, is much lower than would be expected. I believe there are studies showing that in some countries there was less dental caries during the war than there had been previously.

Dr. William A. Fleming (Chapel Hill): May I ask Dr. Bryan about using adults for studies such as he has described? The advantages of using children, of course, is obvious.

In England during the last war the children were favored in every possible way. A considerable effort was made to serve an adequate lunch at school every day as a means of making up the deficiencies of the home diet. The children had many foods that adults could not get. Is there any way of complementing this index with others—using the weights of adults, for instance? Information bearing on production might be included.

Dr. Bryan: I am happy that you raised that point because it allows me to emphasize once again that this is just one index, and in the case of Britain, only one out of many.

Another point which I think is important is that people as a rule do not take kindly to food shortages and rationing, and many will claim to be suffering from an obscure type of malnutrition in order to get more food. Objective data will be useful in proving or disproving such claims.

As to the point that the weights of adults also decrease with undernutrition, there are figures on the decreases in weight that occurred in Germany and France. In order to get a true picture, however, it will be necessary for health authorities to carry out many different kinds of studies and to evaluate the health of the whole population, not only of school children but of adults in industry, pregnant women, and so forth.

In a war emergency the productivity of workers must be maintained. It is well known that if undernutrition becomes prevalent, productivity falls off, particularly in the heavy trades. In postwar Germany coal miners had to get sufficient food in order to carry on their work.

In conclusion, I would like to say again that this discussion covers only one aspect of an extremely complex question.

Child psychiatry: The average American child, as I see him in clinic or office, is a rather competent young organism. He has many problems: those of eating, dressing, going to school, getting on with siblings or peers; he has the problems of feedings, attitudes, relationships. In a sense these problems are his "needs"—are the circumstances of his physical and personal environment that demand his problem-solving attention. But I no longer leap to the conclusion that he must be taken on a psychiatrically conducted tour through this maze, lest he be lost or overwhelmed. He has a considerable capacity to digest these need situations that confront him; in so doing he creates the physical-personality structure that moves him on to the next series of problem-solving demands. None of us knows just what this is; call it "growth" or "Nature." The point is: the child ordinarily does what is demanded by the situation—Anderson, F. N.: *Some Viewpoints on Child Psychiatry*, California Med. 75:213 (Sept.) 1951.

NECROTIZING GLOMERULONEPHRITIS IN POLYARTERITIS NODOSA

Report of a Case

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and

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Although it has long been recognized that arterial and arteriolar lesions in the kidneys occur frequently in polyarteritis nodosa⁽¹⁾, few instances of predominantly glomerular involvement are to be found in the literature.

Presented here is a patient with a long-standing, bizarre illness in whom a diagnosis of polyarteritis was made at autopsy. While the disease was in an apparently quiescent stage clinically, unusual necrotizing lesions developed in the glomeruli as a part of the terminal episode.

Case Report

First admission

The patient was a 30 year old white woman who was admitted to the North Carolina Baptist Hospital on July 31, 1951, because of anuria of 64 hours' duration. In March, 1951, she was first seen by one of us (J.C.W.) on admission to another hospital, because of weight loss, leg pains, pedal edema, and non-productive cough.

The history revealed that in January, 1949, ankles, knees, wrists, and elbows had become swollen and painful, with episodes of exacerbation and remission. There were periods when all joints were involved, and other periods when only the ankles were painful. There was never any redness about the joints. By June, 1942, malaise was severe. A chest film at that time was reported as negative. In July, 1949, her last menstrual period occurred. During the next year she experienced periodic bouts of pain in the joints and lower legs, with increased weakness and loss of appetite. In November, 1950, photophobia with conjunctival injection occurred, and a non-productive cough developed. Anorexia increased, with nausea and occasional vomiting. There had been no skin rash and no pleural or other pains than those of the joints. The

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From the Department of Pathology, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.



Fig. 1. Roentgenogram showing the infiltration of the left upper and lower lobes at its height.



Fig. 2. Roentgenogram showing clearing of the lower lobe, with the remaining lesion in the upper lobe.

patient's symptoms gradually became more severe, with a weight loss of 20 pounds during the course of her illness.

On *physical examination* she was found to be chronically ill, emaciated, and pale. The blood pressure was 105 systolic and 70 diastolic, the temperature 100.6 F., and respiration 20. Circumcorneal injection, corneal vascularization, and small superficial corneal ulcers were present. There were signs of consolidation in the left upper lung field. No abdominal organs were palpated, and there was no tenderness. The vaginal and cervical epithelium appeared atrophic. Tenderness was moderate over the ankles and calves, and there was moderate pedal and ankle edema. The deep tendon reflexes were hyperactive in the upper and lower extremities. The Hoffman reflex was positive bilaterally and the Babinski positive on the left. Ankle clonus was sustained on the left and unsustained on the right. Vibratory sense was unimpaired.

Laboratory data: A review of the laboratory data was of interest in that white blood cell counts ranged from 11,000 with 73 per cent segmented neutrophils and 4 per cent eosinophils to 9,400 leukocytes, with 69 per cent segmented neutrophils and 14 per cent eosinophils. The red cell counts ranged from

3,250,000 to 3,810,000 per cubic millimeter, and the hemoglobin level was 10.5 Gm. per 100 cc. The corrected erythrocyte sedimentation rate was 37 mm. per hour. Urine examination was consistently negative for albumin and red cells. The Kline test was negative. The serum contained 580 mg. of sodium chloride per 100 cc.; the carbon dioxide combining power was 49 volumes per 100 cc.; the nonprotein nitrogen was 37 mg. per 100, and total serum proteins were 6.8 Gm. per 100 cc., with 3.44 Gm. of albumin and 3.36 Gm. of globulin. The cerebrospinal fluid cell count, chlorides, protein, sugar, colloidal gold curve, and the Pandy test were within normal limits. Stools were negative for occult blood. A glucose tolerance test showed normal values.

An electrocardiogram was unremarkable except for a right axis shift. Roentgen examination of the chest showed an active process in the left upper and lower lobes of the lungs apparently not involving the apex. Numerous sputum smears and cultures for tubercle bacilli and for other organisms were done, with negative results. Bronchoscopy revealed thick, yellow, purulent material from the upper and lower lobes of the left lung. Smears

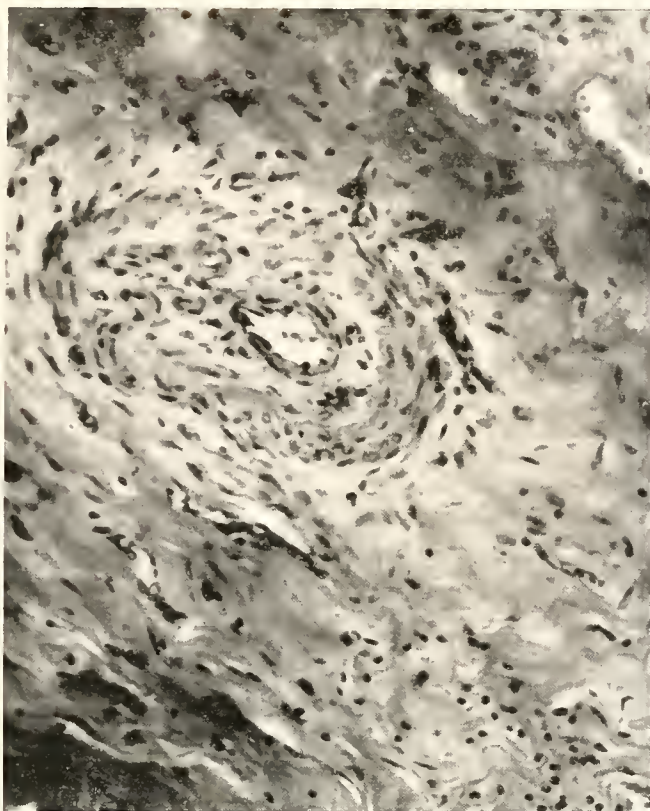


Fig. 3. An artery in the pericardium. The scarring and new vessel formation are seen to the left of the lumen.

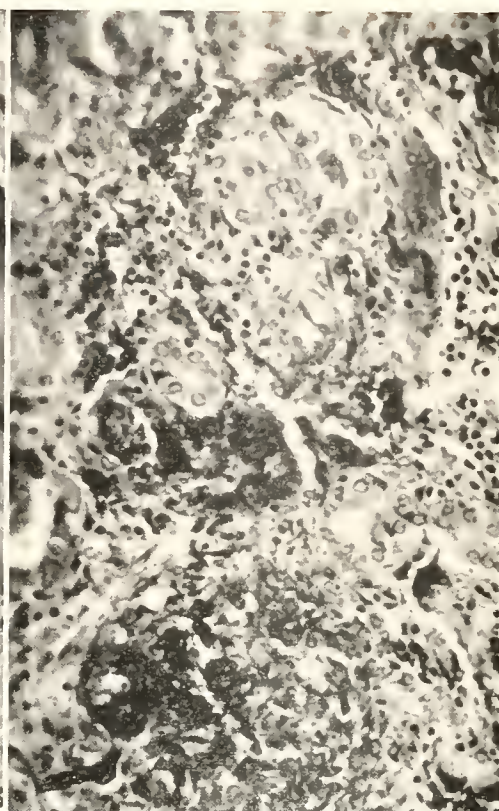


Fig. 4. Photomicrograph of the kidney, showing the extent of the changes. The black areas to the left represent fibrin in necrotic glomerulus.

and cultures revealed alpha streptococci; no abnormal cells. Numerous blood cultures were also negative.

Course of illness: The corneal lesions were treated by topical instillations of chloramphenicol, with good results. Therapy was nonspecific, with the administration of a high protein, low fat and high caloric diet. The pulmonary lesions cleared slowly (figs. 1 and 2), the low grade fever subsided, and a sense of subjective well-being developed, so that the patient was discharged after five weeks. During the succeeding three months she continued to improve, regaining her lost weight and to some degree her strength. Pedal edema and leg pains were gradually diminished.

Final admission

Approximately one week prior to her final admission and two weeks before her death, she began to have chilly sensations without fever, followed by abdominal pains and diarrhea. Ankle edema, dysuria and nocturia

developed insidiously. There had been no preceding respiratory or other evident infection, change in habits, or exposure to toxic agents so far as could be determined. Sixty-four hours prior to admission anuria developed, and during the intervening period anorexia, drowsiness, and clouding of vision and mentality occurred. There was generalized itching but no eruption.

On examination at this time, the temperature was found to be 99.4 F., the pulse 88, and the blood pressure 110 systolic, 70 diastolic. She was chronically ill, dull, and hyperirritable, and had a uriferous breath. Breathing was shallow. The keratoconjunctivitis had cleared, and the eyes showed no lesion. Her chest was clear and the heart was not enlarged. There was a harsh, grade II systolic murmur at the base. The abdomen was distended and tender, with a fluid wave and shifting dullness. No viscera were palpable. The tendon reflexes were hyperactive, and the Babinski and Hoffman reflexes were bilaterally positive.

Hemoglobin was 8.5 Gm. per 100 cc., the red cell count 2,850,000; the white cell count 11,840, with 87 per cent polymorphonuclear leukocytes, 5 per cent eosinophils, and 7 per cent lymphocytes. The nonprotein nitrogen was 172 mg. per 100 cc., the carbon dioxide combining power 1.13 milliequivalents per liter, chlorides were 90 milliequivalents per liter, and potassium 5 milliequivalents per liter. Electrocardiographic changes were thought to be consistent with hypocalcemia or hyperkalemia. Cystoscopic examination revealed edema and hyperemia of the bladder mucosa, but no obstruction of the ureters. Therapy was directed at correction of the electrolyte deficiencies, but anuria continued and the patient expired on the seventh hospital day.

Postmortem examination

The body was that of an emaciated white woman somewhat older in appearance than her stated age. Edema was prominent in the lower legs and feet. One and one-half liters of clear straw-colored ascitic fluid was found. One liter of similar fluid was found in the left pleural cavity, 700 cc. in the right pleural cavity, and approximately 100 cc. in the pericardial cavity. Fluid found in the left pleural and pericardial cavities contained clotted fibrin. Fibrous adhesions were found over the posterior surface of the left lung, and over the right lower lobe. There were dense fibrous adhesions about the spleen. The heart was not enlarged and no valvular lesions were noted, but the myocardium was unusually flabby. The entire right lung and the left lower lobe were hyperemic, and both lower lobes were atelectatic. An irregular, wedge-shaped fibrotic area, approximately 3 by 4 cm. upon the surface, was found laterally in the left upper lobe. In this area of fibrous tissue there were several small cysts measuring up to 0.5 cm. in diameter, filled with pale yellow fluid. Irregular bands of fibrous tissue extended into the adjacent parenchyma along the indistinct borders of this area. There was no evident bronchial or gross vascular obstruction. No evidence of tuberculosis was found either in this area or in the hilar lymph nodes.

The spleen was not enlarged, but was surrounded by dense adhesions and the capsule was slightly thickened. The liver weighed 1,680 gm. and was hyperemic, with prominent lobules, but no other lesion. The adrenal

cortex was thin, and the capsules appeared somewhat thickened.

The left kidney weighed 180 Gm. and the right 200 Gm. The capsules stripped easily, leaving unscarred cortical surfaces. Numerous pale areas the size of pinpoints were noted throughout the cut surface of the cortex with obscured cortical markings and a splotchy irregular reddish discoloration. The pelves and ureters were free of lesions, but the mucosa of the urinary bladder was hyperemic and edematous. The internal and external genitalia showed no gross abnormalities other than a slight decrease in the size of the uterus. The ovaries and fallopian tubes were approximately normal in size, and in each ovary several cystic follicles measuring up to 0.5 cm. in diameter were present. No gross changes were noted in the osseous system nor in the brain.

On microscopic examination no changes were found in the heart. The parietal pericardium was thickened, and the arteries beneath its pleural surface were surrounded by wide bands of hyalinized fibrous tissue through which were scattered lymphocytes, macrophages, and active fibroblastic nuclei. The vessel walls were eccentrically thickened and scarred, with prominence of medial nuclei. In some instances the intima was also thickened; the elastic laminae were generally disrupted. A few instances of new vessel formation (healed granulation tissue) were found in the adventitia. There was diffuse increase in fibrous tissue throughout both lungs, producing patchy thickening of the alveolar walls, more prominent in the left upper lobe. A few of the alveoli about the scarred area were filled with mononuclear phagocytes, and some of the smaller bronchi were dilated, with squamous metaplasia of the mucosa. Blood vessels in this area were generally thickened, and intimal proliferation was prominent. The inflammatory reaction was limited to a few scattered lymphocytes in the interstitial tissues.

In the liver there was some hyperemia and edema. The spleen showed no architectural change. There was no abnormality of pancreatic acini or islet structure, but occasional eccentric scarring of the medium-sized arteries was evident. Arteries in the submucosa of the gastrointestinal tract showed similar changes, and the perivascular connective tissue was often prominent and sometimes hyalinized with new vessel formation in the

adventitia. The zona fasciculata of the adrenal glands was thin, and there was little retained lipid.

Widespread and profound changes involved the entire renal structure. The interstitial tissue was edematous, with infiltrations of lymphocytes, plasma cells, and mononuclear phagocytes. The glomeruli were similar in structure throughout both kidneys, were greatly altered, and in some instances were difficult to distinguish from the surrounding tissue. All glomeruli were the seat of varying degrees of necrosis, usually extensive, with fibrin thrombosis of the capillary loops and proliferation of the epithelium of Bowman's membrane. Proliferative cells filled the capsular spaces, surrounded the tufts, and in instances had themselves undergone necrotic change. Lymphocytic and plasmacytic infiltration in the glomeruli was prominent, as was the presence of mononuclear phagocytes. Fibrin deposition within the capsular mass had occurred in many instances in which capillary walls were obviously disrupted. Endothelial proliferation was active in most instances. Many of the afferent arterioles were involved in a necrotizing process but vascular injury was not evident otherwise. The tubules contained much cellular debris, precipitated albuminous material, and intact and broken red cells. The tubular epithelium was generally intact, but in some of the proximal convoluted tubules the cells were swollen and showed varying degrees of degeneration. Lymphocytic infiltration and edema were present in the pelves in moderate degree. The mucosa was edematous, with focal hemorrhages and lymphocytic infiltration. Although few of the arterioles of the muscularis were thickened and marked by prominent medial nuclei and perivascular scarring, the changes were not so marked as those noted in other areas. The endometrium was thin and atrophic, and the cervical epithelium showed foci of erosion and chronic inflammation. Vaginal epithelium was thin, with irregular edema of the basal layer, and lymphocytic infiltration of this layer and of the adjacent vaginal wall. In the ovaries numerous small cysts were lined by thin layers of flattened granulosa cells.

Comment

The nature of the renal changes and of the diffusely distributed vascular and perivascular scars presents the problem of interpre-

tation. The renal lesions are not in themselves characteristic. That they are not primarily a manifestation of glomerulonephritis is suggested by the findings of vascular lesions in other organs. In the light of these vascular changes, it seems apparent that the two processes must be related.

The lesions of the blood vessels, with scarring, eccentric lumina, disruption of the internal elastic laminae, and healed granulation tissue, are the changes which are found in polyarteritis nodosa in its healed or healing stage. Remissions and exacerbations, with multiple system involvement, may occur in this illness; and occasionally an explosive recurrence may follow a period of quiescence.

In its earlier stages, the disease process in this patient had produced no complete obstruction of a major vessel and no infarct in any of the organs, but was manifested clinically as a peculiar, ill-defined disease characterized by arthritis, keratoconjunctivitis, mild fever, and a pulmonary lesion which resembled tuberculosis or some fungus infection. The urinary findings gave no evidence of renal involvement until the apparently abrupt onset of the terminal episode some two weeks before death, with hematuria of approximately one week's duration followed by anuria for eight days. The glomerular lesions were those of a destructive process developing terminally at the onset of the final illness, with proliferation of the glomerular lining cells, and necrosis of the glomerular tufts. It has been pointed out by Kay⁽²⁾ that proliferative changes in glomerular tufts and in the capsules are evident by the sixth to eighth day after the injection of nephrotoxic duck serum in the rabbit, and that glomerular crescents are clearly evident by the eighth to tenth day.

A few instances of glomerulonephritis associated with polyarteritis have been described, among them the case of McManus and Hornsby⁽³⁾. This patient had a protracted clinical course marked by arthritis, pulmonary lesions, and a short terminal episode, much like that of our patient. The glomerular lesions apparently were basically similar to those of the present case. Daugherty and Baggenstoss⁽⁴⁾ collected 7 cases of subacute and chronic glomerulonephritis associated with rheumatoid polyarthritis. The renal lesions developed more slowly and were of a more chronic or subacute nature than those of our case or those of McManus and Hornsby. Dav-

son, Ball, and Platt⁽⁵⁾ noted in their series of cases changes in the glomeruli which were similar qualitatively.

As further evidence of the nature of this lesion, Herbut's report⁽⁶⁾ may be cited. The patient was a 64 year old white man who was re-vaccinated for smallpox and who died some 37 days later of acute nephritis. The microscopic lesions were fundamentally similar to those of the patient under discussion. In addition, acute inflammatory and necrotizing lesions of the arteries could be found in organs other than the kidneys. They were considered by Herbut to represent polyarteritis nodosa, and he associated the vascular and glomerular lesions as manifestations of the same disease process.

It should be mentioned here that the usual renal lesions of polyarteritis nodosa are vascular, mainly arterial, and marked by necrosis and inflammation of the vessel wall, thrombosis and infarction, associated with secondary inflammatory changes in the parenchyma. Although the glomeruli are usually spared, they may be severely injured in recurrence of the disease process, as in the cited cases. This should be expected in view of their position in the circulatory system, particularly when experimental and clinical observations are considered.

Rich and Gregory⁽⁷⁾ demonstrated the relationship in animals of the lesions of polyarteritis to hypersensitivity produced by injections of horse serum in rabbits. It is interesting that 7 of their 9 rabbits developed acute glomerulonephritis similar to glomerulonephritis in man. Since Lindemann's work in 1900⁽⁸⁾, many others⁽⁹⁾ have produced experimental glomerular lesions in animals by a variety of methods, the most successful being those involving sensitization. An exciting factor or demonstrable sensitivity has occasionally been found in instances of polyarteritis. The condition is sometimes associated with asthma or with a history of sulfonamide or other drug intake or sensitivity. In most instances, however, no such relationships are evident clinically, and in the present case no history of such factors could be elicited.

Summary

The case of a 30 year old white woman whose clinical course consisted predominantly of polyarthritis for about one and one-half years, slowly developing debility, low-grade fever, keratoconjunctivitis, and an ex-

udative pulmonary infiltration in the left upper lobe, is described. Death was caused by acute necrosis of the renal glomeruli, manifested by hematuria, and followed by anuria for eight days prior to death.

The pathogenic features of this case, considered to represent an instance of polyarteritis nodosa with necrotizing glomerulonephritis, are reviewed.

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Discussion

Dr. John B. Graham (Chapel Hill): I would like to ask if there is any possibility of an antigen-antibody reaction in this patient?

Dr. Lee Large (Charlotte): I would like to ask Dr. Lide if he found vascular changes in the lung outside of the scar? The vascular lesions he showed were situated directly in a scarred region. As you know, Leibow has described pulmonary vascular lesions in scars.

Dr. Paul Kimmelstiel (Charlotte): Did you find widespread evidence of necrosis, or was this assumptive on your part?

Dr. Lide: In regard to Dr. Graham's question, we were unable to find historical evidence of an antigen-antibody reaction, either in the nature of a serum reaction or otherwise. We felt that some factor must have resulted in glomerular sensitization and severe necrosis, resembling the effects of anti-kidney serum in experimental animals.

In answer to Dr. Large, the pulmonary vascular lesions were entirely within the scar. They were not similar to the lesions in the arteries of other organs. There were intimal proliferation and fibrosis, and no medial scarring.

Dr. Kimmelstiel was interested in evidence of necrosis. In virtually every organ and area examined

we found scarred blood vessels similar to those which we showed in the slides. There were no active necrotic and inflammatory lesions outside the kidney. The changes were mainly those of the healed or inactive phase of polyarteritis.

A CASE ILLUSTRATING THE MORPHOLOGIC DIFFICULTIES ENCOUNTERED IN THE NEPHROTIC SYNDROME

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WINSTON-SALEM

The child whose illness and autopsy are discussed below presented no striking or new features. Clinically the case was considered a typical instance of the nephrotic syndrome progressing into renal failure.

In the discussion of this case in our pathology department, a variety of views concerning the undelying process was presented, and the clinicians were inclined to regard the pathologic findings as of little value in their understanding of the patient's course. It is this attitude, occasioned by what they consider the poor correlation between the clinical and pathologic findings in the nephritis-nephrosis group of renal diseases, which prompts the present discussion. The intimate relation between structure and function makes it likely that the gaps which exist between the morphologic and functional approaches will gradually be resolved. Morphology has pointed the way to many findings in physiology, and vice versa.

Case Report

The patient was a 4½ year old white girl who had 31 hospital admissions between the first, at the age of 18 months, and death three years later. When first seen she gave a history of infection of a foot and an ear about four months previously, and edema which had appeared two months previously. Examination disclosed anasarca, normal blood pressure, extreme proteinuria, hypoproteinemia, elevated serum cholesterol, and hematuria. There was no nitrogen retention and no anemia.

During the first year of observation she was frequently admitted for abdominal par-

acentesis and the treatment of various infections. The hematuria was so marked that surgical urinary tract disease was considered. Cystoscopy and retrograde pyelography were negative. Numerous urine cultures were sterile. During the remainder of her course nitrogen retention, acidosis, hypocalcemia, and tetany appeared, while the hematuria and proteinuria grew less marked. There was a transient response to ACTH in the form of diuresis. Death followed an upper respiratory infection. The highest recorded blood pressure was 120 systolic, 90 diastolic, during the last few months of life.

The gross autopsy findings consisted of the renal disease described below, together with myocardial hypertrophy (three times normal) chiefly left ventricular, chronic passive hyperemia of the lungs, spleen and liver, and effusion into all serous cavities. The kidneys weighed 45 and 40 Gm. respectively, roughly a 10 per cent reduction for this age group. Externally they showed prominent fetal lobulations. The capsules stripped easily, revealing a faintly pitted pale surface. The organs were firmer than usual.

On section the cortices were found to be narrowed and pale, the medullas pale, and the pelves were slightly more opaque than usual. There was no external obstruction of the urinary tract.

Microscopically, there was diffuse fibrosis and lymphocytic infiltration of the interstitial tissue, with generalized hyalinization of glomeruli. The latter process consisted of hyalinization of the glomerular tuft as well as of the capsule, and the former was usually more marked. No intact glomeruli were present. Proliferative or exudative glomerular lesions were not found. The tubules showed atrophy for the most part, although there were no "thyroid-like" areas. Scattered tubules containing protein casts were present. Some tubules showed epithelial ulceration with slight granulocytic reaction, and granulocytes were mixed with precipitated protein in some. A few areas of tubular regeneration were present. The subpelvic tissues showed changes similar to the interstitial tissue in general. Stains for fat and amyloid were negative. Masson's trichrome stain emphasized the degree of fibrosis.

Comment

The interpretation of these findings varied with different observers. I felt that they represented the end stage of chronic diffuse

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glomerulonephritis, with minimal terminal pyelonephritis. The hyalinization of the basement membranes of glomerular capillaries would be consistent with the presence of the nephrotic syndrome, but I do not think I would have made this association if the history had been unknown. Several of my colleagues thought the changes represented the end stage of "hematogenous" pyelonephritis; whether they took full cognizance of the history I do not know. Their opinion was based on the degree of periglomerular fibrosis, the marked tubular changes, and the degree of interstitial lymphocytic reaction.

We decided that someone should have the opportunity of looking at these slides unprejudiced by knowledge of the case, and I sent them to a former associate who is interested in this problem, Dr. I. R. Diamond of the Children's Medical Center, Boston. Dr. Diamond felt that the changes represented chronic diffuse glomerulonephritis, with the possibility of other, rarer conditions. He did not think that there was significant pyelonephritis nor that the more unusual forms of interstitial nephritis should be seriously considered. When told of the history he felt that this was the only feasible diagnosis.

These findings and opinions offer an example of why many people have remarked on the disparity between the clinical findings of nephrosis and the pathologic picture. Yet, clinically many people distinguish between a "pure" and a "mixed" form of nephrosis, the differentiation being based on the addition of renal failure, hypertension, and hematuria to the usual findings of the nephrotic syndrome in the latter.

There is increasing evidence that the nephrotic syndrome is one stage in a variety of degenerative renal diseases, characterized by the usual clinical features and probably presenting only one consistent pathologic finding, the presence of hyaline thickening of the capillary basement membrane and/or deposition of hyalinized material in the intercapillary space. This glomerular lesion varies in degree, and the variation probably accounts for the addition of features which clinically lead to the "mixed" appellation. The tubular changes are non-specific. Similar changes in the glomerular tuft occur in diabetic glomerulosclerosis (Kimmelstiel-Wilson's disease) and amyloidosis, and may be associated with the clinical nephrotic syndrome. Allen⁽¹⁾ claims that one may infer

from inspecting the microscopic sections that the nephrotic syndrome existed. I would add to this statement the qualification that the kidney must be observed while the syndrome is present, since the later development of marked sclerosis may obscure the findings.

Ehrich and co-workers⁽²⁾ suggest that the fundamental change in the nephrotic syndrome is in the glomerular basement membrane. They believe that glomerular nephritis and lipid nephrosis are distinct entities, with splitting of the basement membrane in the former, and irregular thickening of it in the latter. Lipid nephrosis may heal, or may be complicated by capillary thrombosis and/or exudation into the capillary space. The latter may lead to epithelial proliferation, "crescent" formation and late sclerosis. These complications may lead to renal failure and a terminal histologic picture indistinguishable from that of glomerular nephritis. This correlates well with many earlier observations. Ellis⁽³⁾, for instance, found that patients with lipid nephrosis who did not die early, or recover, developed renal failure and a post-mortem picture indistinguishable from that of patients with his type 2 nephritis. Ellis, however, felt that there was no fundamental difference between lipid nephrosis and type 2 nephritis.

A review of former observations in these conditions and a consideration of newer ideas obtained with newer staining methods make it apparent that the evolution of these lesions correlates well histologically with the clinical findings. It is true that the post-mortem appearance of kidneys from patients with the nephrotic syndrome who died after the development of renal failure differs from that of patients who died of intercurrent disease. This fact is not an occasion for despair over morphology, however, but rather one for rejoicing. It shows the essential unity of these conditions, and the association of the nephrotic syndrome with a definite pathologic lesion which may heal or progress. It also demonstrates the relation of this lesion to other forms of renal disease. What causes the discontent is the fact that in any one case we may not be able to see the evolution of the process, and are called on to interpret what is essentially a scar. When many cases are considered together, there emerges in the light of their clinical course and chemical findings a fairly consistent picture, and one which points the way to further investigation

of the nature of the lesion in the nephrotic syndrome.

Summary

A case of the nephrotic syndrome, culminating with death in renal failure, is presented. The renal lesions suggested the end stage of chronic diffuse glomerulonephritis. The discussion attempts to emphasize that this is in keeping with current knowledge of the pathology of the condition and its histologic evolution, and does not indicate that the nephrotic syndrome is without morphologic correlation, as some have assumed.

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Discussion

Dr. George Margolis (Durham): Did you find in these kidneys any glomeruli which remained entirely normal, as far as you could recognize them?

Dr. Prichard: In all honesty I could not. All of them showed some degree of hyalinization and fibrosis, in the tuft and around it.

Dr. Paul Kimmelstiel (Charlotte): I would like to ask Dr. Prichard if Dr. Ehrlich really claimed to have shown progression from the pure nephrotic stage. I had seen his exhibition some time ago, but I don't recall whether he showed the endothelial proliferation of glomerular nephritis.

Dr. Prichard: It is my recollection that he did. The essence of his concept is that the clinical nephrotic syndrome may be present with the pathologic changes of nephrosis alone which then heals, or such a pathologic picture may be complicated by the appearance of an exudative process which then brings about the pathologic features of glomerulonephritis.

Dr. Kimmelstiel: This case, therefore, is apparently primarily one of glomerular nephritis with a superimposed initial nephrosis? Or was it one of pure nephrosis to begin with?

Dr. Prichard: The original infection suggests glomerular nephritis. The clinical findings can be interpreted either way. The pathologic picture is not helpful. I really don't know.

Dr. Kimmelstiel: Lipoid nephrosis to me is identical with genuine nephrosis. The tubular changes are actually entirely secondary to the lipemia, and are only incidentally related to the nephrotic syndrome.

We can so wrap up a problem in a high-sounding phrase that it becomes lost to view. Sometimes, when we give a name to a disease or coin a term for a train of circumstances, there is a tendency to think the problem is solved. In the course of about 35 years of teaching, I have learned never to use a technical term without defining its meaning, unless I were foolish enough to wish to hide my ignorance from the students.—Murray, E. G. D.: *The Emergency for Research in Unexplored Fields of Public Health*, *Canad. M.A.J.* 66:276 (March) 1952.

PRIMARY HYPERPARATHYROIDISM MASKED AS PRIMARY RENAL DISEASE WITH HYPERTENSION

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DURHAM

Primary hyperparathyroidism was recognized as a disease of the bones years before its etiology was discovered. Historically, in 1891 a case of generalized osteitis fibrosa cystica was described by von Recklinghausen, who noted that in this disease the bones were soft and contained many cysts. In 1923, following the work of Gley and MacCallum and Voetglin, Hanson demonstrated an active principle in the parathyroid glands which would consistently elevate the serum calcium level when injected. In 1925 Collip extracted beef parathyroid glands in hydrochloric acid and obtained an extract which would cause a rise in serum calcium. The same year Mandl removed an adenoma of the parathyroid gland in a patient suffering from von Recklinghausen's disease and noted marked improvement in the patient's bone disease. Thus, hypersecretion of the parathyroid glands was identified as the specific cause of von Recklinghausen's disease, and the syndrome of hyperparathyroidism was elucidated.

The action of the parathyroid hormone, which chemically is identified as a large protein molecule with several amine groups, is not specifically known. However, administration produces the following changes: a rise in serum calcium; a fall in phosphorus; increased excretion of calcium, phosphorus, and nitrogen in the urine; increased calcium excretion in the feces; decreased ratio of nitrogen phosphorus excretion; a rise in the serum nonprotein nitrogen; and a late rise in plasma inorganic phosphorus paralleling the rise in blood urea after 24 hours⁽¹⁾. Hypercalcemia and hypercalcuria in hyperparathyroidism are probably secondary to the extrarenal action of the hormone, since it has been shown that administration does not affect the rate of resorption of phosphate from the dog's renal glomerular filtrate⁽²⁾, and since the resorption of calcium is greater, not

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Fig. 1. Parathyroid tumor and left lobe of thyroid gland.

less than normal in hyperparathyroidism. The latter is presumably secondary to the increased levels of calcium present in the glomerular filtrate. A comprehensive discussion of the subject is given by Albright and Reifenstein⁽³⁾.

A fatal case of primary hyperparathyroidism which clinically appeared to be a case of hypertensive vascular disease with renal insufficiency and cerebral complications is described in the following report.

Case Report

Eight months before death, a previously healthy 15 year old white youth began to have attacks of nausea and vomiting which lasted two weeks. Three attacks occurred before hospitalization. Two months before death he had a severe headache followed by unconsciousness and twitching of the right hand and face, and later by flaccid paralysis of the right arm. Fever and albuminuria followed. He then became semistuporous.

The blood pressure during his illness ranged from 180 systolic, 150 diastolic to 210 systolic, 150 diastolic, with a pulse rate of 80 beats per minute. Fundoscopic examination



Fig. 2. Parathyroid tumor showing normal parathyroid tissue within tumor capsule. Hematoxylin and eosin. (x 115)

of the eyes was normal. Electrocardiograms showed no axis deviation. A leukocytosis of 13,900 was present, with a differential count of 65 per cent segmented polymorphonuclear leukocytes, 1 per cent stab cells, 9 per cent eosinophils, 1 per cent basophils, 8 per cent monocytes, and 16 per cent lymphocytes. The eosinophilia disappeared before death. Analysis of the urine showed the specific gravity to be fixed between 1.002 and 1.010, with 1 plus protein and 5-10 white blood cells per high power field in most specimens. Occasional hyaline casts and calcium oxalate crystals were seen. The nonprotein nitrogen serum level rose to 90 mg. per 100 cc., and the serum potassium fell to 2.19 milliequivalents per liter. The serum chloride fell to 76.2 milliequivalents per liter, while the sodium remained at 147.8 milliequivalents per liter. Calcium and phosphorus studies were not done on the serum. A mild anemia developed (hemoglobin 9.9 Gm.). Phenolsulfonphthalein renal excretion was only 12 per cent in six hours. Terminally, the patient developed a corneal ulcer of the right eye and died with aspiration pneumonia.

At autopsy, the body was found to be emaciated, and numerous petechial hemorrhages

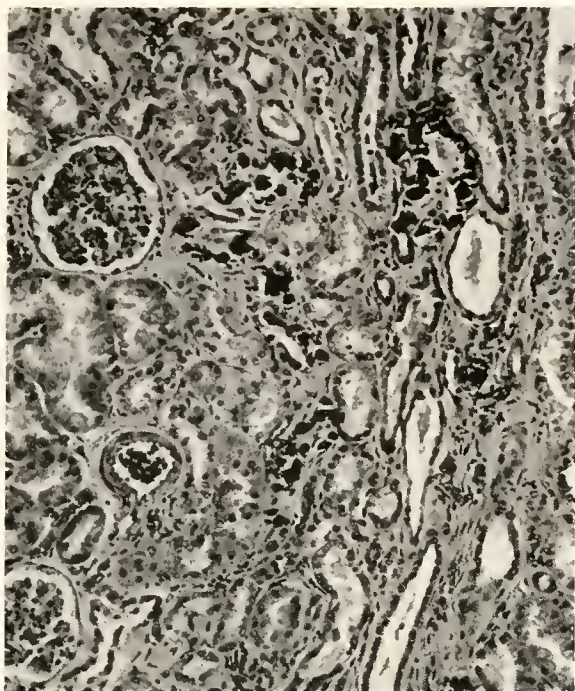


Fig. 3. Kidney showing calcification of tubular epithelium. Hematoxylin and eosin. (x 154)

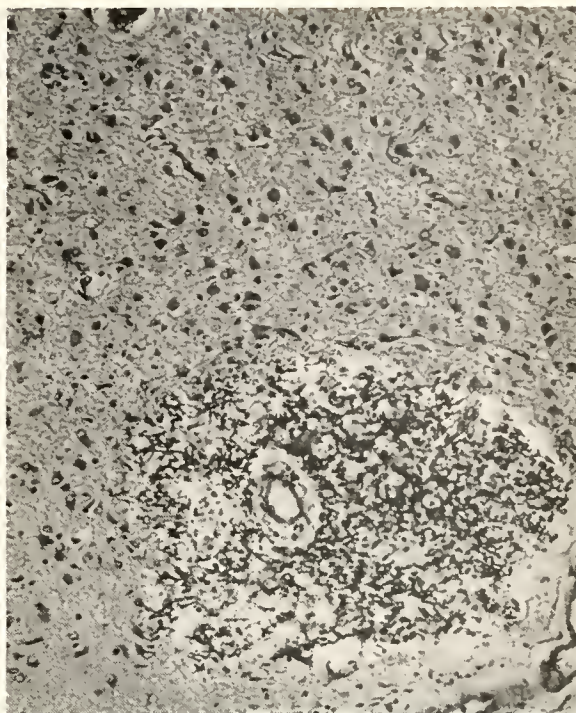


Fig. 4. Gliosis and perivascular mineralization of brain. Hematoxylin and eosin. (x 154)

were noted in the skin. Each lung demonstrated patchy areas of gray consolidation from 1 to 5 mm. in diameter in all lobes. The heart was dilated and weighed 200 Gm. The spleen and liver were passively congested. The kidneys were equal in size, weighing 150 Gm. each. Each cortex and medulla was swollen, and a fatty change was seen in the pyramids. No scarring was present. The thyroid gland was normal, but at the left lower pole a brown encapsulated parathyroid adenoma measuring 1.5 by 1 by 0.8 cm. was found. Four other masses of tissue, thought to be parathyroids, were found. Their combined weight was 14 mg. The combined weight of the adrenal glands was 10 Gm. All other endocrine glands and organs were normal. The brain weighed 1,500 Gm. and showed moderate dilatation of the entire ventricular system, but no obstruction. A 5 cm. focus of cortical encephalomalacia was present in the left parietal lobe.

Microscopically, the parathyroid adenoma consisted of cords and strands of proliferating uniform large cells which had abundant acidophilic cytoplasm and large oval vesicular nuclei similar to the chief or principal cells. A tubular pattern was formed by the cells where they surrounded vascular chan-

nels. Normal parathyroid tissue was compressed within the capsule of the adenoma. The three other parathyroids were not abnormal. The lungs and kidneys had numerous foci of metastatic calcification. Calcification was present in the alveolar walls of the lungs, and, in addition, there was an extensive, acute lobular pneumonia. The calcification of the kidneys occurred in all parts of the tubules but predominantly in the proximal convoluted and collecting tubules. Calcium casts occasionally occluded the lumen of the nephron, but usually calcification was limited to necrotic tubular epithelium. There was parenchymatous and fatty degeneration, with necrosis of the epithelium of the convoluted tubules. There was no calcification of the stomach wall. The bones did not show the lesions of osteitis fibrosa cystica. The brain had numerous bilateral microscopic foci of necrosis. In necrotic areas, there was marked proliferation of large gemistocytic astrocytes and microglia, with perivascular iron and calcium deposition. There were deposits of hemosiderin in the lungs, liver, spleen, parathyroid gland capsule, and brain. The bone marrow was hypoplastic. Striated muscle from rectus abdominus showed foci of necrosis.

Comment

Renal disease in primary hyperparathyroidism may be attributed⁽³⁾ to three sets of pathologic processes. First, hypercalcuria and hyperphosphaturia create an increase in the osmotic pressure of the glomerular filtrate⁽⁴⁾. This produces polyuria and dehydration, which are followed by polydypsia. Second, the supersaturation of the glomerular filtrate results in precipitation of calcium salts, as calcium phosphate and calcium oxalate, in the calyces and pelvis of the kidney. This process leads to urinary obstruction, hydronephrosis, and pyelonephritis. Third, calcification occurs in the renal parenchyma proper, usually in the lumen of the collecting tubules but often in the necrotic or degenerating proximal convoluted tubular epithelium. This process may be due in part to the saturation of the glomerular filtrate with calcium and phosphate ions, but also involved is a primary injury to the renal tubular epithelium.

Following obstruction of the collecting tubules by calcium casts, proximal dilatation and epithelial degeneration occurs^(3,4), resulting in a functionless nephron. Hypertension is a frequent accompaniment of primary hyperparathyroidism^(3,5). A low phenolsulfonphthalein excretion and a rising blood nonprotein nitrogen are associated with the degree of renal damage. This entire syndrome may often be observed in cases of acute primary hyperparathyroidism^(3,5b), but the degree of renal damage and the marked hypertension observed in this case are not commonly observed.

Metastatic calcification occurred in this case in the lungs and kidneys, but not in the stomach wall. The lung and renal calcification observed here are classical⁽⁶⁾. The cerebral lesions are unique. When histologic study of the brain in primary hyperparathyroidism has been reported, the lesions have been described as hyperemia and perivascular hemorrhage. Hueper⁽⁷⁾ reports cortical degenerative changes adjacent to the areas of hemorrhage in dogs given parathyroid extract. In our case, the cortical necrosis is more likely related to the hypertensive state. The cortical mineral deposits are probably secondary to the necrosis⁽⁸⁾.

The absence of the classic bony lesions of osteitis fibrosa cystica in this case is not unusual. In cases of less than one year's duration^(5b), this has been the rule. Although hy-

percalcuria and hyperphosphaturia occur, as long as the intake of dietary calcium is adequate there is no change in the bony mass⁽³⁾.

Conclusion

Primary hyperparathyroidism may produce a syndrome in which the outstanding clinical facts point to primary renal disease. This syndrome may include hypertension, cerebral vascular complications of hypertension, and renal insufficiency.

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Discussion

Dr. Paul Kimmelstiel (Charlotte): I would like to ask Dr. Race if the changes in the glomerular vessels are sufficiently diffuse to account for hypertension, and, if not, how would he explain the hypertension in these cases.

Dr. Race: In some areas the renal vessels were slightly thickened, but in my opinion not to the degree usually seen in hypertension. The absence of glomerular lesions suggesting chronic glomerular nephritis led us to conclude that the vascular lesions were not there also. I can give no explanation for the hypertension other than widespread renal damage.

Dr. Kimmelstiel: You think the hypertension in this case is renal in origin?

Dr. Race: I do.

Dr. John Graham (Chapel Hill): Is not hypertension characteristic of the terminal stages of renal damage, Dr. Kimmelstiel?

Dr. Kimmelstiel: I think that if the kidney is the cause of hypertension, it is by means of impaired circulation, which should therefore require widespread involvement of either the vessels or glomeruli, or both. If that is not the case, one does not expect hypertension to occur, and it usually does not.

Dr. Graham: How about mercuric chloride poisoning?

Dr. Kimmelstiel: No, not to my knowledge.

Dr. Race: The papers of Muirhead and others report a controlled series of animals in which one group had bilateral nephrectomies and developed hypertension while being maintained on an artificial kidney. In another series, the kidneys were left intact and the ureters were tied, but despite nitrogen retention, and so forth, there was no hypertension. This would point to a humoral substance which is either being excreted by, or destroyed in the kidney.

Dr. Robert Prichard (Winston-Salem): Are you going to bring that point out when you publish the paper?

Dr. Race: No. We dealt almost exclusively with the hyperparathyroidism *per se*.

Dr. George Margolis (Durham): There are two things I would like to comment on. First, in regard to hypertension, I think others have shown that an agent which produces hypertension is retained. In the present case, I would like to ask your opinion of the reversibility of the process. If the parathyroid dysfunction had been relieved, would these kidneys have returned to normal functionally?

Dr. Race: I think there would have been some return because of the absence of vascular damage. The epithelial damage was quite widespread, but it certainly could have been repaired, with quite a large degree of functional recovery. I recall a series of patients with renal damage who had peptic ulcers and had consumed large amounts of milk and alkalis. When this was stopped, there was functional improvement.

TOXIC LESIONS ASSOCIATED WITH PARA-AMINOBENZOIC ACID

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DURHAM

In view of the administration of para-aminobenzoic acid as therapy for the collagen vascular diseases, it is felt necessary to add to the literature an instance in which changes in the heart muscle, liver, and kidney are possibly related to the administration of this medication.

Summary of the Literature

In 1949, Zarafonitis, Grekin, and Curtis⁽¹⁾ reported a series of 18 patients with various clinical forms of lupus erythematosus which were treated with para-aminobenzoic acid. In this series there were two deaths. One of these occurred in a child with subacute disseminated lupus erythematosus. She received sodium para-aminobenzoate for a period of 10 days. On the eleventh day she developed nausea and anorexia, and the drug was discontinued. The following day the patient expired, and postmortem examination revealed changes of an acute toxic hepatitis. The second patient who died was an 18 year old white female with disseminated acute lupus erythematosus who was treated for a period of six days. The drug was terminated seven days prior to death because of nausea and vomiting. At the time of postmortem examination the clinical diagnosis was confirmed; no mention is made of changes in the liver.

In 1950, Upton and Zarafonitis⁽²⁾ reported the histologic findings in rats subjected to prolonged para-aminobenzoic acid administration. These animals were sacrificed at one, two, three, and six months. No toxic effects in either the kidneys or liver of any of the animals were recorded.

The next pertinent report was added to the literature in 1951 by Cruickshank and Mitchell⁽³⁾. These authors report the finding in 3 patients who came to autopsy. The first of these was a child who had had rheumatic fever. Para-aminobenzoic acid was administered for a week, but was discontinued because of the appearance of red cells in the urine. After a period of two weeks the drug was again administered in similar dosages for a period of three weeks. At the time of autopsy there was extensive fat deposition in the myocardium and in the renal and hepatic cells. The second case reported is of a 10 year old girl, also with rheumatic fever, who was given the drug for a period of eight weeks. At the time of autopsy, in addition to the changes produced by the rheumatic fever, there was fatty infiltration of the liver and kidneys and myocardium. The third case reported was of a 13 year old boy who was treated for a period of 12 days. The findings at autopsy suggested one of the collagen vascular diseases. In this instance there was also infiltration of the heart, renal epithelium, and liver by fat.

Because of the changes presented by these last 3 cases, the authors decided to study the effects of the administration of the drug to rabbits. They were able to produce fatty alterations in the liver, kidney, and heart.

Case Report

In October of 1947, this 25 year old white woman manifested in rapid succession the following symptoms: (1) redness and tenderness of the fingers, (2) shooting muscular pains in the arms with soreness and stiffness of the arm muscles, (3) puffiness about the eyes and ankles. In a month the acute symptoms subsided, but there was residual soreness in the muscles and there developed a stiffness of the skin over the fingers and gradual wasting of the muscles of the arm and shoulder girdle. Liver function studies were negative.

In October of 1950, increased limitation of motion of the elbows and shoulders was noted on examination. She was given adrenocor-

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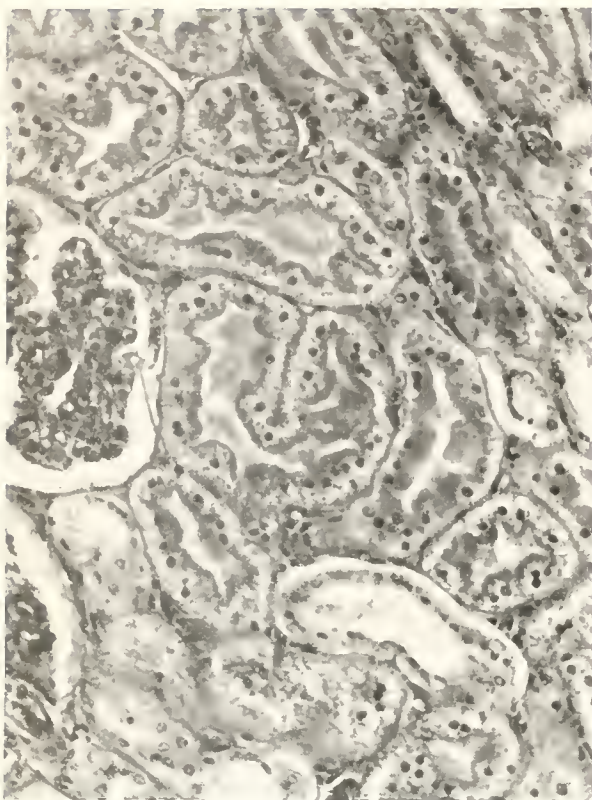


Fig. 1. A section of the kidney showing extensive vacuolization of epithelial cells of the convoluted tubules. (Hematoxylin and eosin)

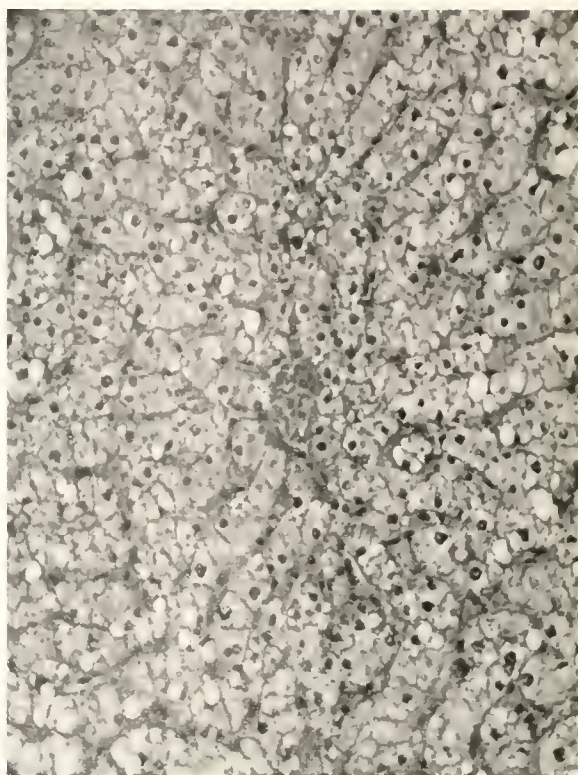


Fig. 2. A section of the liver revealing extreme vacuolization of all liver cord cells in field. Note central vein in the center of the photomicrograph. (Hematoxylin and eosin)

ticotrophic hormone and cortisone without benefit. She was seen again at the hospital in February of 1951, having difficulty in swallowing solid foods. Two weeks prior to death she was started on sodium para-aminobenzoate in the amount of 25 Gm. a day. This therapy was continued for one week, after which it was discontinued because of vomiting.

A postmortem examination was performed at this hospital approximately one and one-half hours after death. The over-all gross and microscopic picture was compatible with dermatomyositis. The following findings were considered unusual:

All sections of kidney showed an extensive vacuolization of almost all the epithelial cells of the tubules. Most of this vacuolization appeared to be basally situated. A stain for fat revealed that all these vacuoles were intensely sudanophilic. No remarkable alteration was seen in the blood vessels or glomeruli.

Sections of the liver showed extensive vac-

uolization of all the hepatic cells. This included both the cells in the central area and those at the periphery of the lobules as well. The vacuoles were large, and the liver cytoplasm was seen as a thin rim of eosinophilic material. A frozen section of the liver was likewise stained with Sudan IV, and all the vacuoles were found to be intensely sudanophilic.

The alteration in the heart muscle was not striking except that in focal areas there was vacuolization of some of the fibers. This vacuolization was also on the basis of accumulation of fat.

Comment

The preceding case is an instance of dermatomyositis which was treated with para-aminobenzoic acid. At the time of autopsy there were extensive fatty changes in the liver and kidney, and mild to moderate fatty changes in the heart. Toward the end of her course, this patient had difficulty in swallowing, and in considering any fatty alteration one must of necessity take into account the factor of nutrition. Combining this

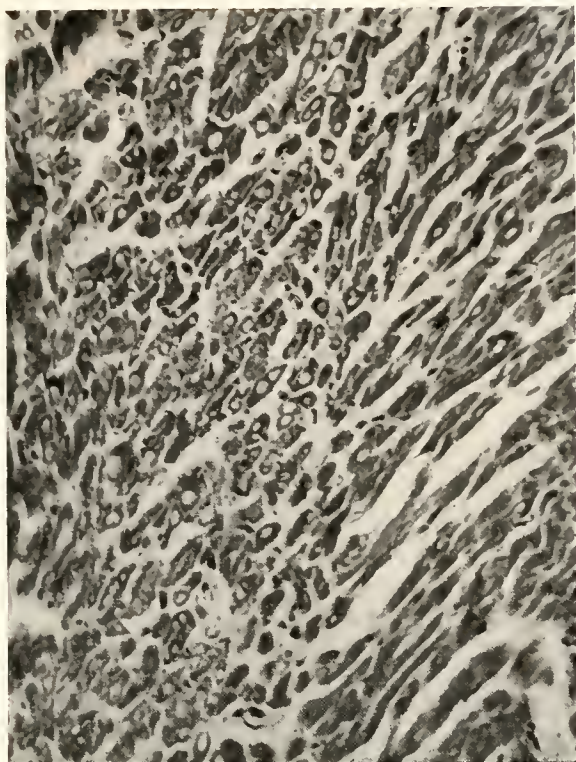


Fig. 3. A section of the heart showing vacuolization of many of the muscle fibers. (Hematoxylin and eosin)

factor with the presence of a generalized wasting disease, one might explain the fatty changes in the liver and heart. This explanation, however, is not sufficient to account for the fatty changes within the kidney, which resemble those seen in a toxic nephrosis. The fact that lesions of a similar nature have been produced in the heart, liver, and kidney of the experimental animal by the administration of para-aminobenzoic acid lends credence to the belief that this mechanism is at least in part responsible for the changes which have been found.

It may be that the administration of the para-aminobenzoic acid is solely responsible for all the changes which were observed. Such a conclusion, however, is questionable in view of the progressive, fatal disease process from which the patient suffered. This case, then, is presented as an instance in which the administration of this drug was probably responsible for a histologic alteration in the body tissue.

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Discussion

Dr. Robert Prichard (Winston-Salem): Was the patient anemic?

Dr. Fetter: Yes, she had a slight anemia, not marked.

Dr. Thomas Wilson (Raleigh): Was the relative dose of para-aminobenzoic acid excessive over a long period of time?

Dr. Fetter: It was given for one week, 25 Gm. per day of the sodium salt, which is not considered excessive.

Dr. Parker Beamer (Winston-Salem): The heart, I remember, was smaller than normal. Were the liver and kidneys enlarged grossly?

Dr. Fetter: The liver was enlarged, weighing 1700 Gm. The kidneys weighed 165 Gm. each.

Dr. Beamer: And that in a woman weighing 100 pounds?

Dr. Fetter: Yes.

Dr. Paul Kimmelstiel (Charlotte): What did the patient die from?

Dr. Fetter: She died from pneumonia.

Dr. Kimmelstiel: Was it sufficiently extensive to be fatal?

Dr. Fetter: As far as we know, it was not. Terminally, a trace of protein was found in her urine for the first time.

We are beginning to recognize that antibiotics are not uniformly without their dangers and disadvantages, great as have been the benefits their use has conferred. This is not simply a clinical therapeutic problem of individual cases, but has public health significance. Witness the interference with the production of immunity in typhoid fever cases treated with chloromycetin, resulting in an unprecedented frequency of relapses and retained susceptibility to reinfection, without any reduction of the carrier rate. Its extensive use in an outbreak of typhoid might well give rise to unprecedented problems in the management of the public health situation. Another type of antibiotic problem comes from the justifiable and intensive use of an antibiotic to treat one kind of infection, thereby promoting the development of another and different kind of infection. This is illustrated by the development of serious mycotic disease, for example, when aureomycin is used extensively to treat a susceptible bacterial infection. Indiscriminate use of antibiotics is also inducing astonishing changes in regional bacteriology which are at times detrimental to the patient.—Murray, E. G. D.: *The Emergency for Research in Unexplored Fields of Public Health*, *Canad. M.A.J.* 66:277 (March) 1952.

The major emphasis of the tuberculosis campaign has been directed to the prevention of the spread of bacilli; yet it was a startling fact that from 50 to 90 per cent of adults become and remain tuberculin positive even in those communities which enjoy a highly developed public health program. Mortality rates have been decreasing much faster than infection rates.—H. R. Edwards, M.D., *The Am. Review of TB*, March, 1952.

ELECTROCARDIOGRAPHY IN GENERAL PRACTICE

DAN N. STEWART, M. D.

HICKORY

As soon as a new technique in diagnosis or treatment has been devised, tested, and proved to be valuable, it is the duty of the general practitioner to incorporate it into his own practice whenever possible. It has been truly said that a general practitioner is a general specialist.

If the procedure is too difficult or if it requires expert knowledge, it should remain the function of the specialist. The greatest difficulty that confronts the general practitioner is to select among his patients those who might require a detailed blood examination, others who need a basal metabolism, and still others who should have x-ray visualization of the genitourinary tract. This entails a knowledge on the part of the physician of the *kind* of information that might be revealed by the specific type of examination.

In applying these ideas to the question of electrocardiography, it is necessary to know the various clinical conditions in which this method may be of help in diagnosis or treatment. Although more and more physicians are doing their own cardiographic work, usually they will need to call on some other physician to obtain and interpret their tracings. The main question, therefore, is: When is an electrocardiogram needed? It is an axiom that the more one knows of heart disease, the less he needs an electrocardiogram. Conversely, the more one knows about electrocardiography, the less he is dependent on it.

Conditions in Which Cardiology is Useful

In general, there are three main groups of cases in which the general practitioner may find electrocardiography helpful: (1) *acute coronary thrombosis* and *chronic coronary artery disease*; (2) all types of *cardiac irregularities*; (3) an *infection* where the possibility of rheumatic fever is present. There is also a miscellaneous group of less common conditions where tracings may be indirectly helpful.

Coronary artery disease

Electrocardiography probably has its

greatest value in the group of coronary artery diseases. So many patients with coronary sclerosis, angina pectoris, and even myocardial infarction show nothing abnormal on ordinary physical examination that laboratory methods are often required to establish the correct diagnosis.

In making the diagnosis of acute occlusion or of angina pectoris, the history is all important. If the typical story is obtained, regardless of how normal any test or examination may be, the diagnosis of angina pectoris must be made, unless the patient is believed to be malingering. There are many instances, however, where the story is atypical and where the distress might be due to gas, gallbladder disease, or many other conditions. If the diagnosis of angina pectoris or coronary occlusion is certain, the physician does not need an electrocardiogram. He should obtain a tracing, however, when the diagnosis is in doubt. By no means, however, does a normal electrocardiogram rule out either angina pectoris or coronary occlusion. A normal electrocardiogram does not guarantee a normal heart. The examination is valuable mainly when it is positive. However, several normal tracings taken during the first one or two weeks following an acute attack do point strongly against the possibility of myocardial infarction.

The electrocardiogram can only show evidence of myocardial damage. This may be due to coronary artery sclerosis without an acute coronary episode. On the other hand, there may be acute coronary disease, slight or marked, without a myocardial infarct, and in these cases the electrocardiogram may be unchanged. Thus, it is seen that the electrocardiogram may be most useful in finding disease in a heart that otherwise appears innocent. It therefore behooves us to use the electrocardiograph rather freely in patients suspected of coronary artery sclerosis, especially in males more than 40 years old with atypical symptoms.

There are a variety of changes that may help in the diagnosis of coronary artery disease. The most typical finding is an abnormal or inverted T wave. Frequently an intraventricular conduction defect will be discovered, and occasionally some degree of auriculoventricular block is present.

The physician should know that some changes may be due to old and inactive lesions that have nothing to do with the present

complaint, and also that alterations may result from causes other than heart disease, such as digitalis, pulmonary embolism, vitamin B deficiency, myxedema, and certain electrolyte imbalances.

Cardiac irregularities

The second group of cases in which electrocardiography can be valuable is that in which irregularities or disturbances in mechanism are present. The more common irregularities are usually recognized at the bedside, but even these may prove difficult for most physicians. Others can be diagnosed in no other way than by a tracing. Electrocardiography is the final authority in irregularities unraveling the rhythms of the heart, and it can be considered the "living autopsy."

The clinician must realize that the correct interpretation of an arrhythmia may be the first clue to a previously unrecognized diagnosis. Furthermore, such a disturbance in the mechanism of the heart may endanger the life of a patient and may yet be curable.

When ordinary occasional extrasystoles are detected, it is rarely necessary to determine whether they are auricular or ventricular. There is too little difference in the clinical significance of the two types to warrant taking a tracing. In a rare case, however, it would help to determine whether attacks of paroxysmal heart action occurring in the same patient at other times were auricular or ventricular in origin. Inasmuch as such attacks may come and go so abruptly that it is almost impossible to obtain tracings of the episode itself, the findings of auricular extrasystoles during the free intervals would point more to paroxysms from the auricles, and the findings of ventricular extrasystoles would point more to paroxysms from the ventricles.

A gross irregularity is fairly typical of auricular fibrillation. A very rapid beat that comes and goes suddenly is characteristic of paroxysmal auricular tachycardia. When the rapid rate is due to auricular flutter or ventricular tachycardia, the diagnosis is not so simple. Since therapy in the two conditions is so different, and since the proper therapy may mean the difference between improving and worsening the situation, it follows that whenever an unusually rapid heart action that is not readily identified is found, a tracing should be taken if possible. The important practical point is that paroxysmal ventricular tachycardia cannot be helped by digi-

talis and, in fact, is made worse by it. It usually, but not always responds to quinidine.

Other types of attacks in which an electrocardiogram is important occur. Patients may have faint feelings and even attacks of unconsciousness, and on later examination, show no abnormalities. A sudden marked slowing of the heart, such as occurs in complete heart block, or the sudden onset of a very rapid rate may result in temporary unconsciousness. What is not generally appreciated is that tracings between attacks may be normal. Even hearts subject to Adams-Stokes attacks will occasionally show no disturbance of the auriculoventricular conduction between attacks. It is necessary, therefore, to make every effort to study any disturbance of the heart during any such attacks.

Rheumatic fever

The third group of conditions in which electrocardiography is helpful is in certain cases of fever of undetermined origin. It is obvious that one does not need an electrocardiogram in every febrile case he sees. If a patient has pneumonia or typhoid fever or tuberculosis, a tracing would show nothing unusual, or if it did, it would offer nothing to alter the diagnosis, prognosis, or treatment. On the other hand, if the diagnosis is obscure, the electrocardiogram may furnish evidence that would aid in identifying the case as one of *atypical* rheumatic fever.

Rheumatic fever may run a peculiar course without arthritis, and the choreic form may be manifested as only a slight irritability. There may be no symptoms at all except a slight or marked involvement of the heart, and the condition may resemble tuberculosis because of weight loss, fatigue, and a slight fever.

It is in these *atypical* cases that an electrocardiogram may help in the diagnosis. The characteristic changes are (1) that seen in first degree heart block—that is, a prolongation of the P-R interval beyond the normal of 0.2 seconds in adults and 0.16 seconds in children; and (2) alteration of the S-T segment. If digitalis has not been given recently and coronary artery disease can be ruled out (and if the condition is not congenital, as rarely occurs), the assumption that the changes represent rheumatic fever is fairly safe. The only other common disease that produces this picture is diphtheria, and clinical confusion here is unlikely. There have been reported recently also cases of acute

gonococcal arthritis accompanied by myocardial involvement and heart block.

Misuse of Electrocardiography

A word of caution must be said against the *overenthusiastic use* of the electrocardiograph. The machine itself is fairly inexpensive and so simple to operate that there are thousands of them in use. Many inadequately trained individuals are assuming the responsibility of interpreting the tracings. Some of the most serious errors are made in trying to read too much into the tracing. Slight flattening of the T waves and notching of the QRS complex may be abnormal and yet lack clinical importance. We have become so conscious of coronary artery disease that there is a tendency to read into a case evidence of coronary sclerosis which may not be justified; and this error is often aggravated by similar misreading of the electrocardiogram.

Another main misuse of electrocardiography is in *prognosis*. There is no doubt as to the diagnostic value of the technique. The point is that, once the diagnosis is established, changes in the electrocardiogram offer little to the prognosis. Experienced clinical judgment may be far superior to the opinions of the so-called cardiographic expert. There is no great value in taking frequent tracings in a known case of coronary occlusion, unless there is some reason to think that some extension has taken place. Even then the clinical course is more likely to be the guide in prognosis and management. The abnormal electrocardiogram is less important than the circumstances under which it is taken. Also, the finding of an abnormal electrocardiogram does not mean that the patient's heart is necessarily the cause of the patient's primary complaint.

Summary

There are three types of cases in which the general practitioner may find electrocardiography helpful: (1) any type of acute or chronic coronary artery disease; (2) arrhythmias which may be difficult or impossible to diagnose; (3) atypical cases of acute rheumatic fever.

There are some cases that can be diagnosed by electrocardiography that cannot possibly be appraised by any other means. The diagnostic value may be great, but its prognostic value is limited. In prognosis, clinical eval-

uation is superior to statistical averages in relation to electrocardiographic changes.

Serious errors may be made by attaching too much clinical significance to minor abnormalities. The electrocardiographic report is only as good as the judgment of the interpreter. A normal electrocardiogram does not guarantee a normal heart or eliminate the possibility of organic heart disease. It does aid in the management of some patients who would not otherwise survive.

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RECURRENT PNEUMOTHORAX ASSOCIATED WITH HEREDITARY DEFORMING CHONDRODYSPLASIA

Report of a Case Apparently Due to Puncture of the Lung by an Exostosis of a Rib

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Hereditary deforming chondrodysplasia is an unusual condition which may affect all bones except those of membranous origin⁽¹⁾. The ribs are involved in some cases and in others occasional pleurisy or pain in the breast has been reported, but no cases associated with pneumothorax have been encountered in a review of the literature⁽²⁾. In the case to be reported, observations made at operation seemed to confirm the clinical impression that the calcified exostosis had punctured the lung and had thus played a

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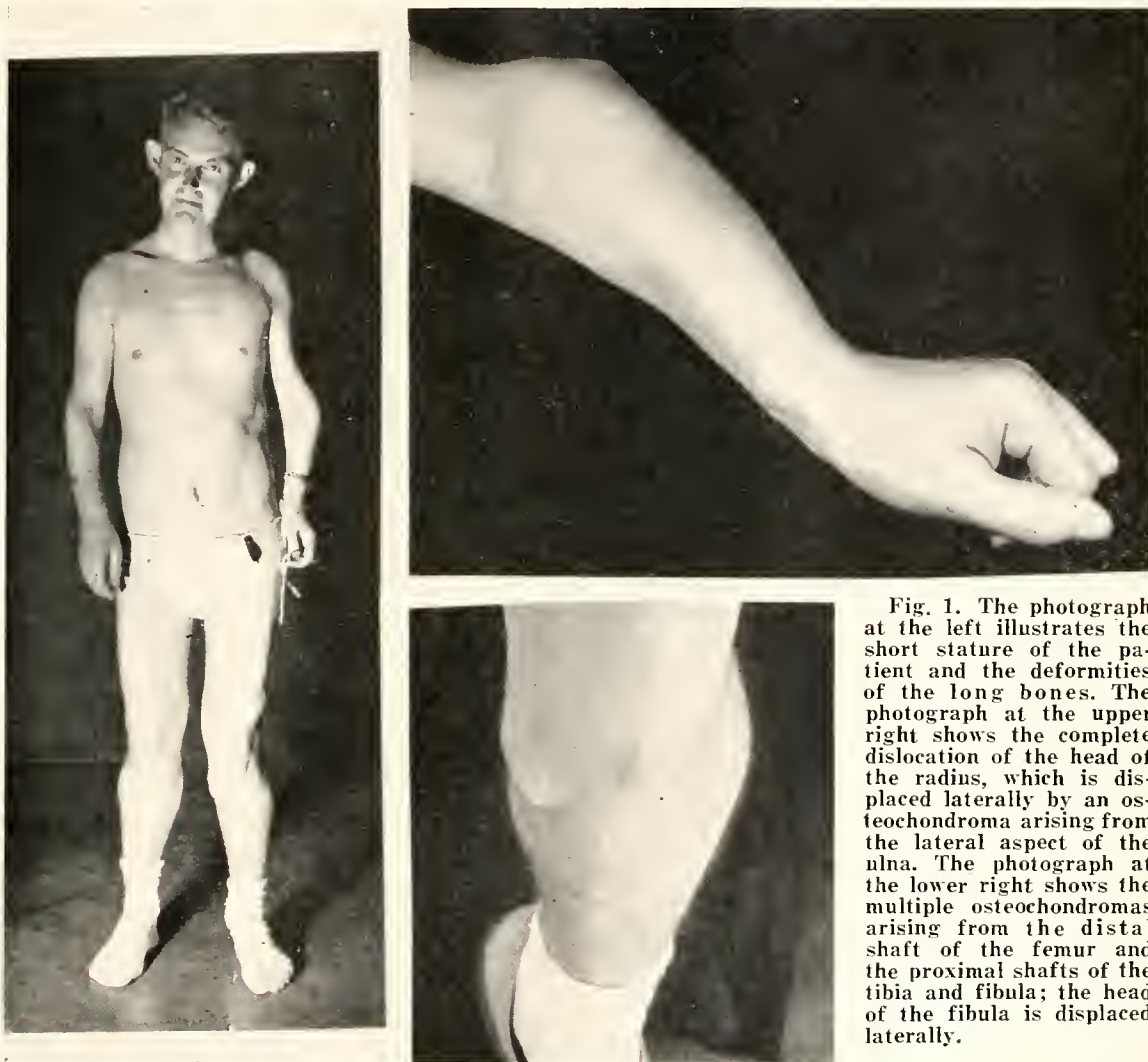


Fig. 1. The photograph at the left illustrates the short stature of the patient and the deformities of the long bones. The photograph at the upper right shows the complete dislocation of the head of the radius, which is displaced laterally by an osteochondroma arising from the lateral aspect of the ulna. The photograph at the lower right shows the multiple osteochondromas arising from the distal shaft of the femur and the proximal shafts of the tibia and fibula; the head of the fibula is displaced laterally.

part in producing the recurrent pneumothorax.

Case History

A 27 year old white male druggist was admitted to the North Carolina Baptist Hospital on August 20, 1948, complaining of dyspnea and pain in the chest.

Since early childhood he had been subject to the development of bony outgrowths, especially near the epiphyses of the long bones. The patient believed that these usually followed local trauma. When he was 18 years of age, one of these outgrowths was removed from the lower end of the right femur. The pathologic examination revealed several irregular fragments of cancellous bone covered by hyaline cartilage; the bone marrow was fatty.

Three months prior to admission he had experienced sudden severe chest pain in the region of the left nipple after sneezing. The pain was followed within a few minutes by marked dyspnea. Roentgen films of the chest showed a pneumothorax on the left side. The patient remained in bed for three days, during which time the lung began to re-expand. He then resumed light work. Three weeks before admission he had a similar attack while walking, but this time the dyspnea persisted.

The patient's mother and maternal grandmother also had bony outgrowths. A review of his past history did not reveal any serious illnesses.

On physical examination the temperature was 99.2 F, the pulse 96, respiration 18, blood

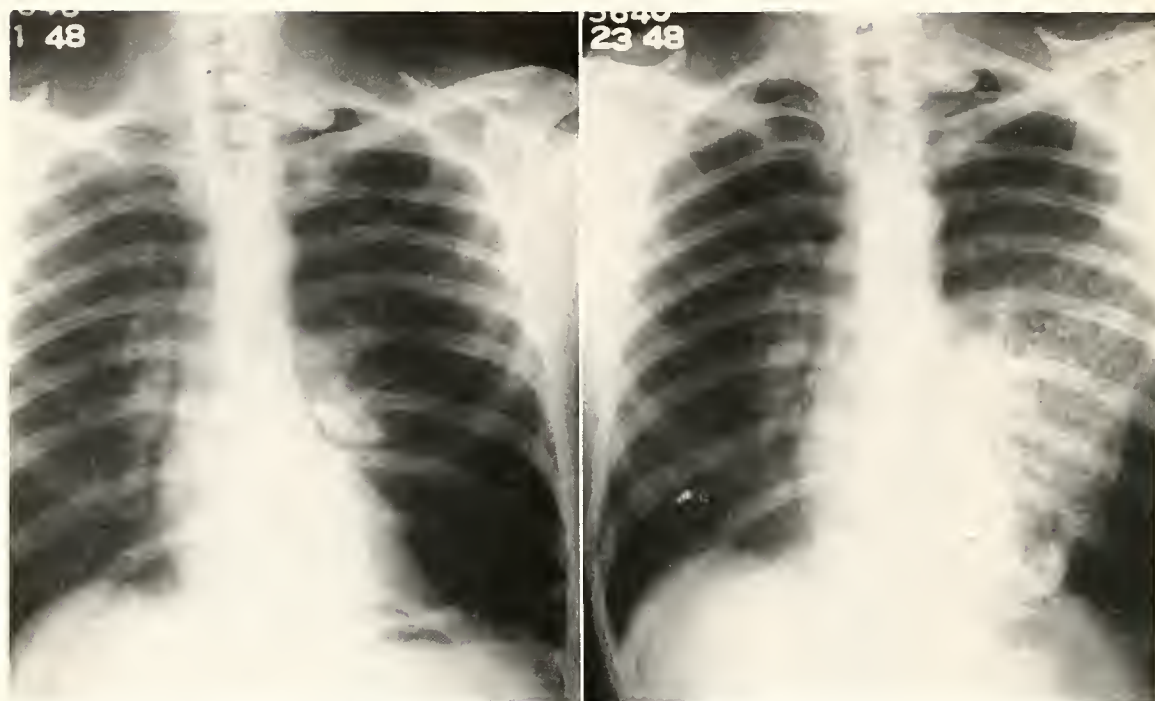


Fig. 2. The roentgenogram at the left, taken on the day after admission, shows a pneumothorax in the left pleural cavity with 60 per cent collapse of the lung. An osteochondroma arising from the eighth rib at the left lateral chest wall just above the diaphragm can be seen projecting into the left pleural cavity. An enlarged view of this lesion is seen in figure 4. The film on the right, taken two days later following the instillation of iodized oil at bronchoscopy, shows no local lesions in the bronchus or lung.

pressure 115 systolic, 90 diastolic. The patient was short of stature, and showed obvious deformity of the long bones (fig. 1). Numerous hard, non-tender bony projections were readily visible around the elbows, wrists, and knees. The upper end of the left ulna was broadened, as were the upper ends of both tibias. Both arms were short, the radii being gently curved. The right arm and leg were shorter than the left. A bony prominence was palpable over the fourth costal cartilage on the left.

Over the left lung the percussion note was hyperresonant, breath sounds were absent, and voice sounds were diminished. The mediastinum was shifted to the right, the cardiac apex being felt 1 cm. to the left of the sternum.

A hairy, elevated, brown-pigmented nevus was seen on the skin of the right forearm. This had been present since birth.

Blood counts and urinalysis were normal. The sedimentation rate was 3 mm. per hour. A Kahn test on the blood was negative. Smears and cultures of the sputum were negative for acid-fast organisms and for fungi. Intradermal skin tests with tuberculin, histo-

plasmin, and coccidioidin were negative.

The serum calcium was 10.3 mg. per 100 cc., the serum phosphorus 3.7 mg. per 100 cc., and the alkaline phosphatase 2.2 Bodansky units per 100 cc. The total serum proteins were 6.3 Gm. per 100 cc.—the albumin 4.0 Gm. and the globulin 2.3 Gm.

Roentgen examination of the chest showed a pneumothorax on the left side, with about 60 per cent collapse of the lung (fig. 2). Bronchograms outlined the collapsed lung, but demonstrated no parenchymatous disease. Multiple osteochondromas were seen arising from the ribs and from the transverse processes of the thoracic spine. Films of the left knee showed multiple large osteochondromas arising from the distal shaft of the femur and from the proximal shafts of the tibia and fibula. The head of the fibula was displaced laterally by a large osteochondroma. The distal end of the femur and the proximal portion of the tibia were considerably expanded, but the articular surfaces in the knee joints appeared normal. The left elbow showed marked deformity of both the radius and the ulna, with complete dislocation of the head of the radius. The radius was dis-

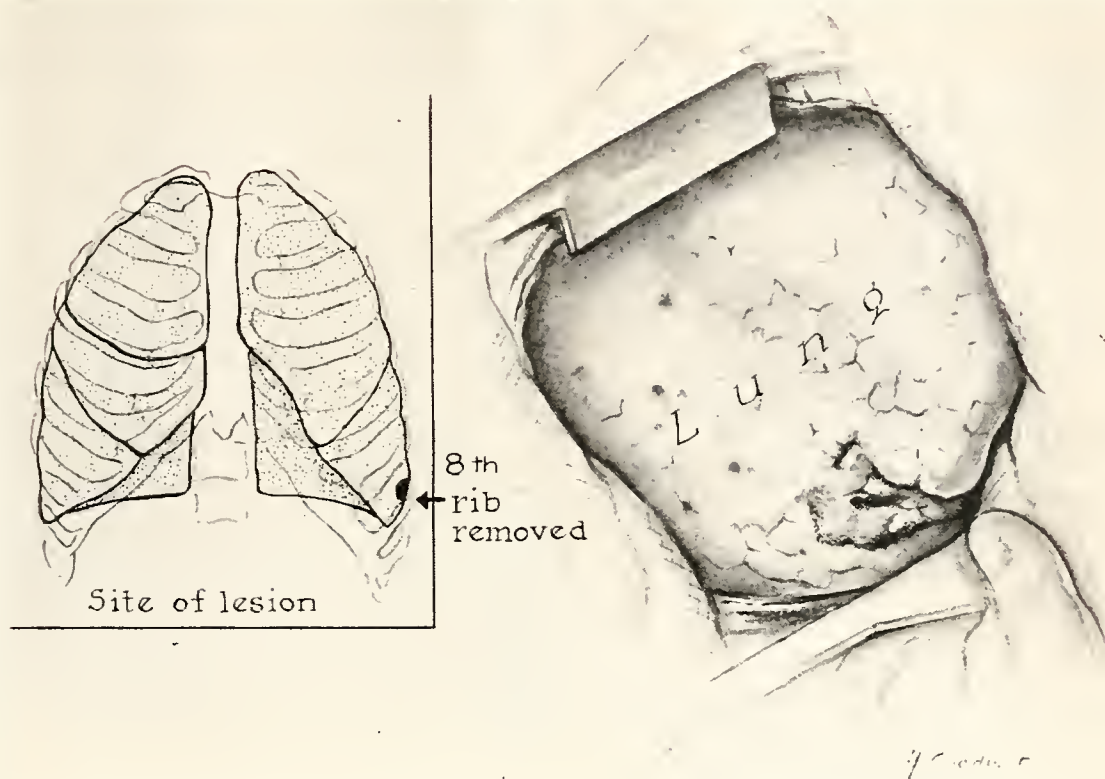


Fig. 3. The diagram on the left shows the location of the pointed exostosis on the eighth rib seen in the roentgenogram at the left of figure 2. The drawing on the right was made after the seventh rib had been removed and the lung expanded with positive pressure. The fibrosed collapsed area with an indentation suggesting a point of puncture is seen just above the retractor at the lower portion of the field.

placed laterally by a large osteochondroma arising from the later aspect of the ulna.

Following a negative bronchoscopic examination, an exploratory thoracotomy was performed. When the left pleura was opened, osteochondromas measuring from 2 to 5 cm. in diameter were found on the first, fourth, sixth, and eighth ribs. The costochondral junctions on the left side were all very prominent. On the eighth rib, near the costochondral junction, was seen a very prominent osteochondroma with a slightly rounded point of firm tissue projecting into the chest cavity. Opposite the point of the exostosis an imprint was clearly seen on the lower lobe of the left lung (fig. 3). When the lung was expanded by positive pressure, an area approximately 3 cm. in diameter, which appeared to have fibrosed as the result of repeated trauma, remained collapsed. No bronchopleural fistula could be demonstrated. A 7.5 cm. section of the eighth rib near its anterior border was removed (fig. 4). Sterile talc was rubbed over the visceral pleura to promote adhesions.

Pathologic examination of the operative



Fig. 4. The photograph at the left, enlarged from a roentgenogram of the chest, shows the pointed partially calcified osteochondroma arising from the eighth rib. The photograph at the right shows the 7.5 cm. portion of the rib including the osteochondroma removed at operation.

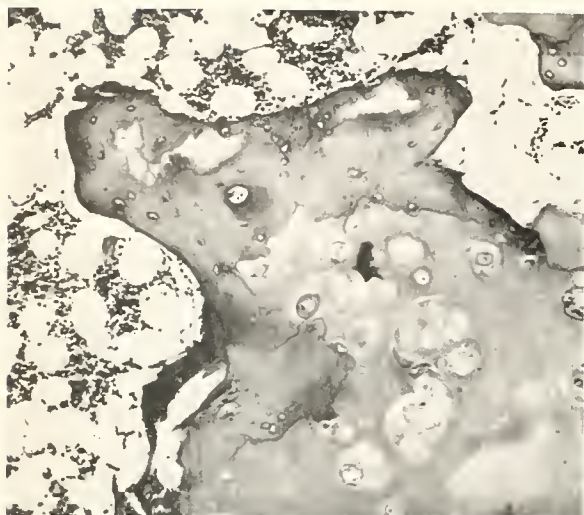


Fig. 5. The low power photomicrograph of a cross section of the osteochondroma illustrated in figure 4 shows the projection of old and new cartilage covered by dense fibrous tissue into the bone marrow.

specimen showed cartilaginous tissue surrounded by dense, fibrous connective tissue. Old and new cartilage formation was present, and some areas of new cartilage formed projections into the fibrous tissue (fig. 5).

The postoperative course was uneventful, and the patient was discharged on the tenth postoperative day with the lung 20 per cent collapsed. Later chest films showed complete re-expansion of the lung.

Five months after discharge—in February 12, 1949 — pain accompanied by dyspnea again developed in the region of the left nipple. Once again physical signs of pneumothorax were found. Roentgen examination of the chest showed 30 per cent collapse of the left lung; the base of the lung appeared to be adherent to the diaphragm so that the lower lobe remained partially expanded (fig. 6). After rest in bed the lung re-expanded, and no further attack occurred for more than a year.

On April 15, 1950, while reaching upward toward a high shelf, the patient again experienced pain in the left side of the chest. Roentgen examination revealed a pneumothorax involving only the upper third of the left lung. No treatment was required.

When he was last seen—in August 1951—the patient was working full time, but had recently suffered another pneumothorax on the left. Roentgenograms revealed that the rib removed was regenerating.



Fig. 6. The roentgenogram, taken February 18, 1949, five months after discharge, shows a small area of recurrent pneumothorax over the upper and lateral portions of the lung; the base of the lung is adherent to the diaphragm inferiorly and to the parietal pleura laterally. The left seventh rib was removed at the time of operation in order to enter the pleural cavity.

Comment

Hereditary deforming chondrodysplasia is a disease characterized by deformities of the long bones, with exostoses near the ends. Among the many synonyms which have been used to describe this condition are "multiple cartilaginous exostoses," "hereditary multiple exostoses," "multiple hereditary osteochondromatosis," "diaphyseal aclasis," and "multiple congenital osteochondromata" (2,3,4,5). The variable clinical picture of the disease probably accounts for the multiplicity of descriptive titles. The projections usually appear in childhood, grow most rapidly during adolescence, and tend to become calcified as the individual reaches maturity. The rib projections arise chiefly from the costochondral junctions; the skull and spine may also be affected.

The etiology has been widely discussed. The presence of bony deformities in this patient's maternal ancestors seems to leave no doubt that the present case was hereditary as well as congenital in origin.

The lesions probably begin as an overgrowth of cartilage cells from the epiphyseal plate. Since the growth is unchecked by the periosteal sleeve, the cartilage grows outward as a projection and later becomes calcified; the epiphyses tend to become widened and deformed⁽²⁾. Attempts have been made to reproduce the lesions experimentally by fracturing the long bones and by grafting pieces of bladder mucosa into the rectus muscle of the dog⁽⁶⁾.

Spontaneous pneumothorax is known to occur following pulmonary disease — most frequently tuberculosis, although malignant growths and other conditions have also been incriminated⁽⁷⁾. Following strain, pneumothorax may result from the rupture of an emphysematous bleb on the surface of the pleura or from the rupture of an adhesion⁽⁸⁾. Pneumothorax also occurs spontaneously in normal individuals without pulmonary disease in whom no cause for the pneumothorax can be found⁽⁹⁾.

In the present case, no evidence suggesting an infectious etiology could be found. Strain was minimal, since the patient did not lift heavy weights or do hard work. In view of the upward angle of projection of the exostosis, the occurrence of pneumothorax after sneezing and after reaching would be compatible with the impression that the sharp cartilaginous tissue may have been responsible. The incomplete pneumothoraces which occurred postoperatively could have been produced by the rupture of small adhesions. Previous attempts to produce adhesions between the visceral and parietal pleuras by the instillation of talc have been reported⁽¹⁰⁾. In this case the attempt was partially successful, as the roentgenograms illustrate (fig. 6). The reduction in the extent of subsequent collapses indicates that some benefit was derived from the pleural reaction induced at operation.

Summary

A case of spontaneous pneumothorax occurring in association with hereditary deforming chondrodysplasia is presented. Since no bronchopleural fistula was demonstrated at operation, it is difficult to be certain that the osteocartilaginous projection from the eighth rib into the left pleural cavity actually punctured the lung and produced the pneumothorax. The imprint of the exostosis on the lung and the presence of scar tissue, however, suggest an etiologic relationship.

Removal of the involved portion of the rib and the production of adhesions between the parietal and visceral pleuras by the instillation of sterile talc has reduced the number and severity of the recurrent pneumothoraces.

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Shortage of x-ray films: The consumption of x-ray films in hospitals and clinics is difficult to limit, particularly in large departments which strive for a high standard. Wastage occurs each winter by a variation in power at peak hours which disorganizes the exposure charts of every radiographer. Films are wasted by the duplication of examinations in out-patients and wards, by requesting films of both knees when one is affected, by ordering before the former film has been inspected. These are obvious but common mistakes. Equally appreciated is the zealous houseman who tries to anticipate every wish of his consultant. The arrival of a new batch of medical officers is reflected in an increase in the work of auxiliary departments, but this increase is temporary. — Editorial, *British Medical Journal* 1:94 (Jan. 12) 1952.

Another interesting ebb and flow in medicine concerns itself with changes in the severity of illness caused by certain diseases—not related to improvements in methods of prevention or treatment or both. As an example, in my lifetime I have observed a striking and rather steady decrease in the severity of rheumatic fever, although there seems to have been no corresponding decrease in the seriousness or frequency of valvular heart disease of rheumatic origin. Likewise, I have twice seen influenza change from a rather mild illness to a serious one of pandemic proportions of high fatality. Bright's disease also has seemed to lessen in the severity of its manifestations, in a way not to be explained by any great improvement in its therapy and at a time when antecedent, probably causative bacterial infections were no better controlled or treated. This occurred in the period prior to the use of sulfonamides and antibiotics in these infections.—Christian, H. A.: *Ebbs and Flows in Medical Interest*, *New England J. Med.* 246:284 (Feb. 21) 1952.

SEVERE CHOREIC STATES IN ADULTS AS MANIFESTATIONS OF DE- PRESSIVE REACTIONS

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Little is known about the pathology or altered physiology which may be presumed to cause most mental illnesses. Likewise, little is known about what the physical therapies such as prefrontal lobotomy, electric shock treatments, insulin, and carbon dioxide accomplish physiologically or structurally to bring about clinical improvement or cure in the treatment of mental illnesses. Therefore, it seems worth while to add to the literature as many observations as possible concerning the relief of mental illnesses with physical therapies in the hope that some day the literature may be reviewed for the dual purpose of trying to discover the etiologic factors responsible for mental illnesses and the *modus operandi* of the several physical therapies.

This paper is a report upon the treatment of two severe choreic states in adults who were treated with electro-convulsive therapy. It is believed that each of these patients had a primary depressive mood disturbance and that the choreiform movements were secondary to the affective disorder.

Case 1

First hospital admission

The first patient, a 46 year old woman, was admitted to Duke Hospital on December 31, 1946, complaining of weakness of the right leg and arm and of involuntary jerking movements involving the right side of the face, the right arm, and the right leg of three months' duration. The onset of the jerking movements was preceded by pain in her right leg, which began in February, 1946. Following the onset of this pain, she had difficulty in sleeping, lost weight, refused to have sexual intercourse with her husband, and became extremely nervous. She took bromides as prescribed by her physician until she had a skin rash and became confused and somewhat paranoid. The patient remained at the hospital for 23 days, during which time she received psychotherapy. At the time of discharge her family thought she was improved, but the house officer who wrote the discharge note said that he could see no change in her condition.

The history revealed that the patient comes from

a somewhat unstable, peculiar, and quarrelsome family. She was said to have been treated for a speech difficulty at about the age of 9. One sister was married to an alcoholic husband; and a brother had been treated for syphilis. This brother had sued the estate upon the death of the patient's father. The patient's mother had died of a right-sided paralysis. A further disturbing factor was the recent amputation of a neighbor's leg because of hardening of the arteries and gangrene of the leg.

The patient married at the age of 18. Two years later she gave birth to a daughter, her only child. Subsequently the patient had at least two miscarriages.

The patient had been hospitalized in 1938 at the age of 26 because of palpitation, perspiration, shaking, a lumpy feeling in her throat, weakness in her knees, and nervousness.

Two years prior to the onset of the present illness, her only child married, and the patient was left alone with her husband. He was frequently away on prolonged business trips, during which she frequently wrote and accused him of drinking and running around with other women.

Second hospital admission

The patient was re-admitted to Duke Hospital on October 30, 1950. At that time her condition was reported to have remained about the same except for increasing nervousness, loss of weight and appetite, and accentuation of the involuntary movements of the right side of her body during the past year. Six weeks prior to re-admission, rather pronounced vaginal bleeding had developed, and three weeks later a dilation and curettage was performed. Ten days prior to admission she began sticking out her tongue involuntarily, and hyper-extending her neck; and the involuntary movements, which previously had been present only on the right side of her body, became generalized. She had been taking bromides, and her blood bromide two days prior to admission had been reported to be 550 mg. per 100 cc.

At the time of this admission, the patient was emaciated and extremely agitated. She was flailing her arms and legs in aimless choreiform movements to such an extent that she had to be continually restrained from adding new bruises to her already badly bruised body. These movements could be markedly reduced by voluntary effort, especially if her attention could be distracted.

An electroencephalogram done under Sodium Amytal narcosis showed no focal abnormalities, and seizure discharges did not occur. Her blood bromide several days after admission had dropped to 24 mg. per 100 cc.

Ten days after admission the patient's involuntary activity continued to increase until it was thought that she would literally beat herself to death unless drastic measures were taken. She was given two electric shock treatments daily for five days, and one treatment a day for six additional days. All the treatments resulted in major convulsive seizures, although on the days when two treatments were given the second seizure was less severe than the first.

The patient did not begin to show definite evidence of post-shock confusion until after her fifteenth treatment. After the sixteenth, she was definitely confused, but her involuntary movements were significantly decreased. In the early morning hours of the night after her last treatment, the patient suddenly became extremely violent, screamed, yelled, and attacked her private duty nurse. It required the concerted efforts of an orderly, an interne, and two nurses to restrain her. She was transferred to the disturbed psychiatric ward, where she continued to be disturbed and confused for four days.

On the fifth day her mental condition rather

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suddenly cleared. She dressed herself, applied make-up, and was permitted to go to the day room, where she behaved quite normally. Three days later her behavior was still normal, and she was permitted to go home. One year later a letter written by the patient with pen and ink and in excellent penmanship was received. She reported that she had been completely well since leaving the hospital.

Case 2

First hospital admission

The second patient was a 52 year old, married, white woman who came to the hospital on November 14, 1951, with a chief complaint of intermittent pain in the right foot just distal to the heads of the third and fourth metatarsals of 10 or 15 years' duration. She stated that these attacks of pain were precipitated by being on her feet for more than three hours, and had been more frequent and severe during the past six months. In addition to the pain in her right foot, she also had pain in both thighs and legs.

The patient's hospital record showed that she had been seen on April 16, 1937, with the complaint of severe pain in her left jaw, which made chewing or talking almost impossible. She had had this pain for two and one-half months. The orthopedic surgeon who saw her at that time thought that she had synovitis or arthritis of the left maxillomandibular joint. Her symptoms had been so severe that the orthopedist considered having her teeth wired together in order to give her jaw complete rest. However, the condition subsided promptly when the patient was put on a liquid diet and told not to move her jaw. The hospital record further revealed that from 1943 to 1948 she had received symptomatic treatment for what was thought to be sciatica on the right.

She was seen in consultation by the orthopedic service, and a diagnosis of plantar neuroma of the right foot was made. An operation lasting one hour was performed under Pentothal Sodium anesthesia on December 4, 1951. The growth was removed and the diagnosis confirmed by histologic examination of the tissue. At the completion of the operative procedure, apnea developed in the patient and lasted five minutes. Artificial respiration was administered, and the patient did not become cyanotic.

At 6:50 p.m. on the day of operation, rather violent movements of her trunk and extremities began, with simultaneous panting and groaning. Some observers thought her behavior resembled that of a woman about to experience orgasm during sexual intercourse. She was conscious, oriented, and able to carry on a conversation intelligently, but stated that she was unable to stop these movements. There were no localizing neurologic signs; 8 cc. of chloral hydrate given by mouth made the patient drowsy but did not alter her behavior. One and one-half hours after the onset of her involuntary activity, she was given 100 mg. of Demerol intravenously by the anesthetist, and she went to sleep and remained quiet throughout the night. She had no further involuntary movements throughout her stay in the hospital. The next morning on being questioned about her experiences of the day before, she stated that she could remember only that she had a nightmare.

The patient remained in the hospital for one week following her operation. During this time she complained of weakness and did not want to get out of bed when advised that she could. She seemed to be somewhat in a daze, picking up a newspaper and laying it aside with the remark that she could not concentrate.

Second hospital admission

Three days after leaving the hospital (10 days after operation), the patient became nervous and restless. That night she did not sleep well. The following day the involuntary writhing movements were resumed and continued all night, keeping both the patient and her husband awake.

Twelve days after the operation, she was readmitted to the hospital. At this time the violence of her movements was causing her to bruise herself in many places. One hundred mg. of Demerol given intravenously quieted her only temporarily. She was first seen by us the next day, when two nurses were required to prevent her from self-injury. The patient was interviewed under Pentothal narcosis, but no significant information could be obtained. It was suggested to the patient that her movements would quiet down when she awakened, but they did not.

The next morning, during a second interview conducted under Sodium Pentothal, the patient was questioned about her sex life. She stated that she had had no sexual desire since she went through the menopause four years ago, that she had not had sexual relations for four or five years, and that her husband was impotent. Her movements seemed to be greatly intensified while we were talking about sexual matters. During this second interview she also reported that she had been depressed ever since her mother died 10 months ago. Upon awakening from this second interview, her movements were just as violent as before.

The patient was then given three carbon dioxide treatments, without effect. She was then started on electro-convulsive therapy and her involuntary activity immediately began to subside. After four treatments her movements had almost stopped. At this time the patient showed definite evidence of depression, and had several crying spells each day. She was given three additional electric shock treatments for a total of seven treatments during a period of five days, and was permitted to leave the hospital with instructions to report back for outpatient observation and treatment as necessary.

Third hospital admission

The patient did quite well from the time that she received her last electric shock treatment on December 23, 1951, until February 2, 1952, at which time she reported back to the hospital complaining of mild depression and of a recurrence of involuntary movements in the fingers of her left hand and in the muscles of her left lower extremities. She was given another electric shock treatment on that date, and these movements subsided considerably. She was given five more electric shock treatments for a total of 14, but the only observable result was the development of confusion. She still had some difficulty in manipulating her silverware while eating because of the tendency toward involuntary movements of the fingers of the left hand, and there was some difficulty in walking because of involuntary muscle spasms in the muscles of her left lower extremities. At the present time the patient has only occasional choreiform movements in her left hand and is doing quite well.

Comment

When these two cases are compared, they are seen to have certain characteristics in common:

1. The adventitious movements were either unilateral in the beginning and then became bilateral, or were bilateral in the be-

ginning and then became unilateral during the course of treatment.

2. Each of the two patients gave a history of long-standing instability with a tendency towards hysterical-like, somatic complaints.

3. Each of the patients gave a history of disturbed sexual activity.

4. The two patients were not relieved of their adventitious movements until shock therapy had produced signs of post-shock confusion.

Conclusions

It is concluded that these two patients were relieved of their choreiform movements by electric shock treatment because their choreiform movements were somatic manifestations of a depressive affective disorder. Since rather intensive treatment was required and since the choreiform movements did not cease until the patients showed definite memory disturbances and confusion, we are led to believe that the movements stopped as a result of the depressing effect of the electric shock upon the functioning of the neurons in the cerebral cortex.

It seems worth while to contrast this hypothesis with the hypothesis that stimulating nonconvulsive electric shock treatments relieve psychic pain by their stimulation of subcortical structures. It has been our experience that patients who are relieved of psychic pain by electric shock show evidence of rather marked sympathetic nervous system responses to the treatments, without manifesting any signs of confusion or memory disturbances.

Discussion

Dr. Leslie B. Hohman (Durham): I think these 2 cases illustrate part of a thesis which we uphold—namely, that a great many of the so-called psychoneuroses are really affective depressions and that the manifestations of hysteria, anxiety, or neurasthenia are symptomatic of affective disorders. We believe that the proof of this theory lies in the recoveries that are achieved, since it is generally agreed that electric shock is valueless except in the affective disorders.

The Effect of the Soma on the Psyche: Awkwardness and inexperience in the handling of patients in the early stage of their illness may lead to serious trouble, in the form of psychoneurosis, depression, lack of cooperation in the essential treatment, and distrust of the medical profession. The cults, including Christian Science, have in large measure thrived as the result of our ineptitude in this particular.—White, P. D.: *The Psyche and the Soma*, Ann. Int. Med. 35:1297 (Dec.) 1951.

APLASTIC ANEMIA WITH QUESTIONABLE RELATION TO CHLOROMYCETIN THERAPY

Report of Two Cases

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Bone marrow depression has been observed during short periods of Chloromycetin therapy⁽¹⁾. Only 1 case of fatal aplastic anemia developing during prolonged use of Chloromycetin therapy has been reported in the English literature⁽²⁾. The following 2 cases of fatal aplastic anemia are reported because of their possible relationship to Chloromycetin therapy.

Case 1

A white male, age 4 years, was in excellent health up until July 8, 1951, when malaise, anorexia, headache, and a fever of 103 F. developed. Physical examination did not reveal the cause of the illness, but some redness of one ear drum was noted. The patient was started on Chloromycetin, 250 mg., four times a day, and received a total of 18 doses. The only other medication given was aspirin, 2½ grains, on one or two occasions. The patient's fever subsided, and he appeared well. However, the mother felt that he was not as active and full of life as usual, and he continued to show anorexia and easy fatigue. On August 15, 1951, the mother noted over the patient's body large ecchymotic areas which were thought to be traumatic. Two days later the patient was bleeding from the gums and was hospitalized.

Past history

The past history revealed that the patient had always been in excellent health. He had never received medications except small amounts of aspirin on rare occasions. The history for exposure to drugs, chemicals, plant sprays, and so forth, was completely negative.

Physical examination

The patient was a well developed child and did not appear acutely ill. The rectal temperature was normal. Positive physical findings were limited to the skin and mucous membranes. There was a large ecchymotic area over the left iliac crest, and several smaller areas over the lower extremities. A few petechial lesions were noted in the mouth and over the trunk. There was no lymphadenopathy or jaundice. The liver and spleen were not palpable. A tourniquet test was markedly positive.

Laboratory findings

The urine was negative on routine examination. The red blood cell count was 3.18 million; hemoglobin, 9.0 Gm.; white blood cell count, 9,000; polymorphonuclears, 27 per cent; lymphocytes, 63 per cent; eosinophils, 10 per cent. The platelet count was 125,000. A platelet count four days later showed 60,000. Bleeding time was 2.5 minutes; clotting time, 4 minutes; clot retraction, slight in 24 hours. A stool examination was negative for ova and para-

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²From the Department of Pediatrics, Charlotte Memorial Hospital, Charlotte, North Carolina.

sites. Bone marrow aspiration on two occasions showed a marked hypoplasia of all bone marrow elements.

Clinical course

The patient's white cell count slowly decreased to around 3,000, with 100 per cent lymphocytes. The last platelet count taken was 14,000. Bleeding from the nose, gums, and gastrointestinal tract occurred at intervals, and was controlled with transfusions of fresh blood. The patient was given liver by injection and vitamins as supportive measures.

In November, 1951, while at home, the patient developed a nasal discharge of clear mucus. This nasal infection rapidly progressed into ethmoiditis and cellulitis of the right side of the face. The patient was admitted and treated vigorously with surgical drainage, antibiotics, and chemotherapy. Culture of the nasal discharge showed hemolytic *Staphylococcus aureus* and beta streptococcus highly resistant to all drugs tested. The infection progressed into gangrene of the face, nose, and palate. Signs of generalized septicemia developed, and the patient expired on December 6, 1951.

Autopsy findings

Bone marrow from rib, sternum, and vertebrae showed marked hypoplasia involving the granulocytic and erythroid series. There were numerous iron-containing macrophages, innumerable plasma cells, as well as multinucleated and giant cells taken to be proliferating reticulum cells.

All major organs showed numerous bacterial colonies and Monilia colonies. The stomach and intestinal tract up to the rectum showed innumerable ulcerations associated with the growth of Monilia colonies.

Case 2

A 6 year old white boy had been well up until July 14, 1951, when he contracted an illness characterized by headache, nausea, vomiting, and fever ranging from 100 to 103 F. The cause of the illness was not apparent on physical examination. The patient was started on Chloromycetin, 250 mg., four times a day. He received the drug for four days. By this time, the patient's temperature was normal and he appeared well. Approximately one week later the symptoms returned, and the patient was given Chloromycetin, 250 mg., four times a day for three days. The patient appeared to recover. This was around July 28, 1951. During the month of August the patient slowly developed pallor, exertional dyspnea, and preferred to sleep most of the time. A few areas of ecchymosis were noted at intervals, but were thought to be traumatic. The areas of hemorrhage began to appear in alarming numbers, and the patient was hospitalized on September 11, 1951.

Past history

The past history revealed that the patient had been in good health and had never been seriously ill. Since two years of age, he had had occasional attacks of hay fever treated with Benadryl. He had not had an attack for approximately eight months.

There was a negative history for exposure to poisons, paints, or other medications.

Physical examination

The patient was a well developed white male. The temperature was normal. The mucous membranes, skin, and bony prominences showed numerous petechial and ecchymotic lesions. There was no jaundice or lymphadenopathy. The liver and spleen were not palpable. A tourniquet test was markedly positive. The remainder of the physical examination was not remarkable.

Laboratory findings

The urine was negative on routine examination. The red blood cell count was 1.8 million; hemoglobin, 5.0 Gm.; white blood cell count, 5,150; polymorphonuclears, 5 per cent; lymphocytes, 96 per cent. The platelet count was 40,000; clotting time, 3 minutes and 11 seconds; bleeding time, 18 minutes; clot retraction, none in 18 hours. A histologic examination of bone marrow showed a marked diminution in myeloid and erythroid elements, with only infrequent marrow elements scattered within fat tissue.

Clinical course

The patient was admitted at intervals and given transfusions of fresh blood for the control of bleeding from the gums, nose, and gastrointestinal and urinary tracts. In addition, he was given vitamins, oral liver concentrate, and a penicillin tablet (100,000 units) three times daily. On one occasion there developed on the leg a large abscess which responded well to terramycin. Infection was never a particular problem.

The patient's white blood cell count ranged around 2,000, with a differential count of 3 to 8 per cent polymorphonuclears, the remainder being lymphocytes. The platelet count varied around 8,000 to 10,000. Bleeding gradually became more pronounced, and frequent transfusions were necessary.

On October 16, 1951, the patient was started on Cortone, 25 mg. twice daily. Approximately six weeks later he began to complain of pain in the thighs, which he described as "nervousness." He insisted on rocking to and fro in a knee-chest position, and was noted to have an erection much of the time. The patient traumatized his face with this activity and produced conjunctival hemorrhage and bleeding from the nose and lips. On January 4, 1952, after increasing amounts of sedatives failed to control the patient, the Cortone was stopped. Within 36 hours, the patient became quiet and complained no longer of pain.

On January 15, 1952, following a cerebral hemorrhage, he expired.

Autopsy findings

Innumerable discrete and confluent areas of recent hemorrhage were found in the brain, subarachnoid and subdural spaces, and in the kidneys, urinary bladder, gastrointestinal tract, skin, lungs, striated muscle, and the heart. There was massive retroperitoneal hemorrhage involving both the anterior and posterior abdominal walls and pelvis. The spleen weighed 78 Gm. and showed a normal architectural pattern. The adrenal glands appeared normal. The bone marrow in the ribs, vertebrae, and sternum was reddish-brown in color and slightly firmer than usual. Microscopically, there was a marked absence of hemopoietic tissue. Only spotted areas of hemopoiesis were found. No other abnormalities of the hemopoietic system were demonstrated.

Summary and Conclusion

Two cases of fatal aplastic anemia following Chloromycetin therapy are reported. In each case, Chloromycetin therapy had terminated four to five weeks before distressing clinical symptoms brought the patient to a doctor.

The evidence as to the causative agent in each case is circumstantial. However, marked bone marrow depression during short periods of Chloromycetin therapy have been pre-

viously observed and reported in the literature. In the cases reported by Volini⁽¹⁾, the peripheral blood count returned to normal following withdrawal of the drug. It is believed that Chloromycetin produced irreversible changes in the 2 cases reported here.

The second patient was given Cortone without detectable effect on the clinical course or peripheral blood picture. The only disturbing side effect noted was interpreted as an increase in the sexual drive of the patient.

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AN ANALYSIS OF MATERNAL MORTALITY IN CHARLOTTE AND MECKLENBURG COUNTY, 1938-1951

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The Metropolitan Life Insurance Company states that today the hazards incidental to pregnancy and childbirth are a level which seemed Utopian not many years ago. Currently the rate is appreciably under 1.0 per 1,000 live births nationally, and in large sections of the country it is even less than 0.5 per 1,000 live births. The rate has been reduced by about two-thirds in the past five years. In North Carolina in 1914 the maternal rate was 7.3 per 1,000 live births, while in 1951 it was 1.0 per 1,000 live births.

Significant Facts

1. There has been an amazing drop from 5.7 per 1,000 live births in 1938 in Charlotte and Mecklenburg County (considered together) to 0.3 per 1,000 live births in 1951, a period of 14 years.
2. The rate for Negro patients has been consistently higher than that for white patients, with the exception of the year 1939.
3. There were no deaths among white patients (out of a total of 8,970 live births) in 1949 and 1951, and only 1 death out of a total of 13,174 live births in the three year span of 1949, 1950, and 1951. In the same period there were 6 deaths among Negro patients in a total of 4,329 live births. If the year 1948 is included, however, 5 additional deaths among white patients occurred, or for

Table 1
Maternal Mortality in Mecklenburg County
Compared With State and National
Maternal Mortality
1938-1951

Year	(Rate Per 1,000 Live Births) Mecklenburg County			N.C.	U.S.
	White	Negro	Total		
1938	5.5	6.1	5.7	5.6	4.4
1939	5.3	4.6	5.0	5.0	4.0
1940	4.1	8.7	5.3	5.2	3.8
1941	4.9	6.4	5.3	4.0	3.2
1942	2.7	8.2	4.2	3.5	2.6
1943	2.3	4.9	3.0	3.3	2.5
1944	1.3	4.0	2.0	3.0	2.3
1945	2.0	5.0	2.8	2.7	2.1
1946	0.3	4.9	1.3	2.1	1.6
1947	0.9	1.6	1.0	1.8	1.3
1948	1.1	3.3	1.6	1.9	1.2
1949	0.0	0.7	0.2	1.3	0.8
1950	0.2	2.8	0.7	1.2	0.7
1951	0.0	1.2	0.3	1.0	

Total live births 59,192; total deaths 128.

the four year period of 1948-1951, 6 deaths in 17,605 live births. Likewise, 4 additional deaths occurred among Negroes, or for the four year period of 1948-1951, 10 deaths in 5,538 live births.

4. The Charlotte-Mecklenburg mortality rate has been consistently lower than the North Carolina state rate since 1946. Likewise, it has been lower than the national rate since 1946, except for the year 1948. At last North Carolina's maternal mortality rate is approaching a respectable figure, but there is still room for improvement. The Charlotte-Mecklenburg rate, if it continues to follow the trend of the past three years, is approaching the irreducible minimum—at least for white patients.

Is there an irreducible minimum? Dr. George Gordon Douglas, professor of obstetrics and gynecology at Cornell University, states in regard to Cornell's (the New York Hospital) rate: "It is apparent that obstetrical patients can now be cared for without mortality resulting primarily from the process of pregnancy or parturition, except in the rarest circumstances. There may continue to be occasional fatal accidents, but what was considered an irreducible minimum in this respect a decade ago has been reduced materially today . . . Survival alone should not be our only criterion of end results achieved."

Of the 128 deaths, 115 occurred in hospitals and 13 in homes. One death occurred with a midwife in attendance (home delivery).

In 1951, out of 6,183 live births, 207 infants, all Negro (135 city, 72 county) were

Table 2
Analysis of 128 Maternal Deaths in
Mecklenburg County
1938-1951

Causes of Death		No. Deaths	Per Cent
Hemorrhage		31	24
A. As a direct cause of death			
Ectopic pregnancy	5	25	
Abortion	3		
Placenta previa	7		
Accidental hemorrhage	2		
Postpartum hemorrhage	8		
B. As an associated factor			
Exhaustion state, shock	4	6	
Rupture of the uterus	1		
Abdominal pregnancy	1		
Toxemia of pregnancy		43	34
Hyperemesis gravidarum	4		
Polyneuritis of pregnancy	1		
Nephritis and other renal lesions	15		
Eclampsia	23		
Infection		27	21
Abortion	14		
Puerperal sepsis	13		
Embolism (including 2 cases of amniotic fluid embolism)		9	7
Others		18	14
Pyelonephritis	3		
Cardiac failure	4		
Pernicious anemia, pneumonia, intestinal obstruction (2 cases), thrombocytopenic purpura, urinary suppression, colitis	8		
Undetermined	3		

delivered by midwives at home. In addition, 84 (including 23 white babies) were delivered by doctors in the home (39 city, 45 county).

Causes of Death

Toxemia of pregnancy leads the list in Charlotte as the cause of maternal death. In most other studies, hemorrhage leads the list—probably the greater availability of blood (blood bank) is a major factor in the reduced mortality from hemorrhage here. There has been only 1 death from puerperal sepsis in Charlotte during the past eight years. Two of the deaths from embolism were caused by amniotic fluid embolism. None of the remaining 7 deaths attributed to embolism were followed by autopsy, so it is possible that the diagnosis was incorrect in some of these cases. No deaths were attributed to anesthesia; however, in 1 case it was listed as a contributing factor. Eighteen autopsies were performed, giving a rate of 14 per cent; the rate for the past four years, however, has been 38 per cent.

In the past four years (1948-1951), there

have been 16 deaths—5 from toxemia, 5 from hemorrhage, 2 from infection, 2 from amniotic fluid embolism, 1 from exhaustion due to a postpartum psychosis, and 1 associated with post-cesarean colitis (cause of death not fully determined).

As a basis for comparison, the maternal mortality rate in New York City was 1.1 per 1,000 live births in 1948 and 0.9 per 1,000 live births in 1949.

Conclusion

The reduction in mortality is a part of the country wide decrease. It represents better obstetrics, which means a higher standard of obstetric practice on the part of the physician; more hospital deliveries and better hospital facilities; higher hospital staff standards and requirements; more outpatient clinics; as well as education of the public and the desire for better care on the part of the patient. Certainly the availability of chemotherapeutic and antibiotic drugs, plasma, and blood has been a major factor. Much credit should also be given the State Maternal Welfare Committee. Finally, prosperity has undoubtedly been a factor.

This analysis was compiled solely from the death certificates filed with the local Health Department and tabulated by Mrs. Louise Young Workman, statistician.

Today, life expectancy is about 20 years longer than it was in 1900. More Americans can expect to live well into their seventies, eighties, and nineties. Aging brings with it new and challenging problems that must be recognized.

In an effort to help people understand what some of the common problems of aging mean to the individual, his family and his community, the Federal Security Agency has issued a guidance booklet entitled *Looking Forward to the Later Years*.

Copies of the publication (PHS Publication No. 116) can be purchased for 5 cents each from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. A discount of 25 per cent is allowed on orders of 100 or more sent to one address.

Ebbs and Flows in Medical Interest: As one grows old in medicine, he recalls ebbs and flows in the tides of medical interest in various diseases, as evidenced by periods when many articles are published on some specific subject and other periods when interest in that subject seems to wane for months or even years. In the course of time one can even observe an irregular periodicity of these cycles and mentally plot curves of ebb and flow. The full cycle is occasionally as short as five years; occasionally it lasts ten or fifteen years, or even longer.—Christian, H. A.: *Ebbs and Flows in Medical Interest*, *New England J. Med.* 246:281 (Feb. 21) 1952.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

DECEMBER, 1952

NAVY SURGEON GENERAL MALIGNS CIVILIAN PHYSICIANS AND DENTISTS

In a prepared address delivered on Novem-
ber 17 before the annual meeting of the As-
sociation of Military Surgeons, Rear Admiral
Lamont Pugh, Surgeon General of the Navy,
asked the rhetorical question, "What is the
main objection to the military and the main
attraction to civilian medicine?" His insult-
ing answer was: "We all know it is simply
a matter of money-avarice, a better if albeit
a fanciful and possibly an ephemeral oppor-
tunity to get rich quick."

One wonders just what moved Admiral
Lamont to make such a malicious attack upon
civilian physicians and dentists. Certainly
he was mistaken if he thought it would en-
courage them to volunteer for the armed ser-

vices. It is not the nature of doctors to be
driven by browbeating and abuse. Had Ad-
miral Pugh ever been a civilian doctor, he
would have known this; but more than 25
years spent as a naval medical officer have
apparently given him the rigid, domineering
mind that is only too often acquired by men
whose lives have long been regimented. The
prospect of having such a man as "chief" is
not likely to make physicians and dentists
flock to his banners.

Had Admiral Pugh ever done a few years
of honest, hard work as a civilian doctor—
whether in general practice or in a specialty
—he would have known that it is not an easy
way to make money. Compared with the aver-
age general practitioner, the career men in
the armed forces spend most of their lives in
ease and comfort. Statistics have shown that
the incomes of physicians have not risen in
proportion to the cost of living generally, and
the money earned by the average practitioner
is neither quick nor easy.

Admiral Pugh further insults his own cho-
sen profession when he wonders "if the doc-
tor isn't on his way to becoming an heretic of
the doctrine that it is more blessed to give
than to receive." Can he name any member
of society who gives more freely of his time,
his energy, his hours of sleep and recreation,
and his very self than does the average family
doctor? It is unfortunately true that there
are a few medical men who prostitute their
professional attainments—but these consti-
tute a small minority of our profession. Fur-
thermore, in virtually every state medical
society of the Union, grievance committees
have been set up to discipline just such mem-
bers.

Doctors have not forgotten, if Admiral
Pugh has, the woeful waste of medical man-
power in World War II. Letters from scores
of medical men of all ages who were in ser-
vice came to this office, complaining of the
dreadful boredom from which they suffered
with so little to do. The Duke Hospital Unit,
"after five weeks of basic training and in-
doctrination in military procedures," was
kept at Fort Bragg for more than a year be-
fore it was sent overseas. Even granting that
"they also serve who only stand and wait," a
year is a long time for a doctor to be profes-
sionally idle—especially when the proportion
of doctors available for the civilian popula-
tion was at a dangerously low level.

Admiral Pugh to the contrary notwithstanding, doctors would much rather *give* freely of their medical talents in order to keep them bright and shining than to *receive* more leisure than they want. Doctors are willing to serve their country when their country needs their services, but they want to guard against misuse of their professional training and skill. The fact that more than 60,000 physicians—one third of all the doctors in the United States—volunteered for service in the armed forces during World War II proves that they are not lacking in patriotism. Dentists also did not hesitate to volunteer when they were needed.

Admiral Pugh really outnodded Homer when he asked: "Has the doctor become a convert to a creed which during recent years has made great gains in popularity and in the number of its followers and whose motto is "Security above liberty?" Certainly the members of no profession have fought harder than have the American doctors, both as individuals and in organizations, to combat the creed of "Security above liberty," which has been the theme song of the bureaucrats in Washington for the past twenty years. The recent election would indicate that the effort has not been in vain.

WHOSE BIRTHDAY DO WE CELEBRATE?

A recent *Saturday Evening Post* editorial tells of a Christmas party for Japanese Children given by a company of the U.S. Army of Occupation in Japan. As a G.I. in a red Santa Claus suit and cotton whiskers was giving out presents, 8 year old Ito asked a question that is hard to answer: "Whose birthday is it? The man with the whiskers' birthday?" Someone had told Ito that they were celebrating the birthday of the Saviour—but to him it seemed that Santa Claus was the main attraction.

It must be admitted that too many adult Americans are forgetting that the real purpose of Christmas is to celebrate the birthday of the Christ Child, and that the gifts customarily handed out symbolize the conception of Christ as God's greatest gift to the world.

This year it is particularly fitting that we remember and honor Him who has been called the Prince of Peace, and whose birth was hailed by the heavenly choir with the hymn, "Glory to God in the highest and on earth peace, good will toward men." The

greatest Christmas gift that could come to this country and to the whole world would be that peace which He came to bring and which could be attained by the universal application of the Golden Rule.

WHY USE MORPHINE?

The time was when morphine was of necessity the drug of choice for relief of such severe pain as biliary or renal colic or the pain of a coronary occlusion. No other derivative of opium or any other analgesic which could be given by hypodermic injection could equal its power to relieve pain. It is no wonder that Sydenham said that without morphine few men would be callous enough to practice medicine, and that Osler called it "God's own medicine." The nausea that was apt to follow the administration of morphine was accepted as part of the price that had to be paid for the blessed relief it brought from pain; and this nausea, as well as its habit-forming property and the rapid tolerance acquired to it, was recognized as a calculated risk.

The custom of using morphine for any severe pain has become so firmly established that it may seem rank heresy to enter a protest against its use. In a treatise on cardiac therapy which is just off the press,⁽¹⁾ morphine is virtually the only drug recommended for the pain of myocardial infarction — although, as an apparent after-thought, the concession is made that "If patients cannot take morphine because of sensitivity, pantopon. . . or Demerol . . . may be used as substitutes."⁽¹⁾

Since morphine will nauseate at least one third—probably one half—of individuals not accustomed to its use, it seems pertinent to raise the question as to why it should be used at all, except for patients who are known to tolerate it well. Demerol or Dilaudid or methadone will relieve pain just as certainly and quickly as will morphine, and are far less apt to cause nausea than are morphine or Pantopon. In a patient with a myocardial infarction the violent exertion associated with vomiting may mean the difference between life and death.

Medical men should remember that there are substitutes for morphine which are just as effective and far safer. Why use morphine?

1. Stewart, H. J.: Cardiac Therapy, New York, Paul B. Hoeber, Inc., 1952, p. 305.

Clinicopathologic Conference

DUKE HOSPITAL

JAMES P. HENDRIX, M.D., *Editor*

Presentation of Case

DR. GRACE KERBY: This 34 year old housewife was apparently well until 50 days before her death when she developed cough, fever, generalized aching, and mild anorexia. She was admitted to her local hospital the next day with progressive abdominal distention, diffuse generalized abdominal pain and a temperature of 104 F. Terramycin therapy was instituted. Cough and fever disappeared, malaise and weakness persisted, abdominal distention increased, and nausea developed. After four days the liver was palpable and there was evidence of free fluid in the abdomen. The white blood cell count was 15,000; the icterus index was 12 units. Penicillin therapy was added. A normal bowel movement occurred on the ninth day. Abdominal distention persisted and increased. Blood nonprotein nitrogen was 70 mg. per 100 cc. Abdominal paracentesis on the tenth day yielded 200 cc. of clear amber fluid. The patient was transferred to Duke Hospital immediately after this procedure.

The past history is pertinent in that the patient had had abdominal distention and pain eight years previously, and an appendectomy was done. The liver was thought to be enlarged at that time. The patient manifested transient jaundice 10 to 14 days postoperatively and then ascites, necessitating repeated abdominal paracenteses. She appeared well after one to two months. There was no history of excessive alcohol intake, dietary inadequacy, toxic agents or of injections prior to the appendectomy. There was no history of jaundice in other members of the community at that time.

Physical examination on admission to Duke Hospital revealed a lethargic, somewhat dehydrated, acutely ill woman with no apparent icterus. Vital signs were normal except for slight tachycardia. There was a questionable spider angioma on the upper chest. Striking subcutaneous edema of the trunk was present below the level of the sixth to eighth thoracic vertebra. A few fine inspiratory rales were heard at both lung bases. The abdomen was tight, and there was evidence of free fluid. There was diffuse abdominal tenderness

without definite rebound tenderness and without rigidity.

Laboratory findings: The hemoglobin was 12 Gm. and gradually fell during the next 40 days to 9.5 Gm. The white cell count varied between 13,000 and 41,000, with a polymorphonuclear leukocytosis. A few nucleated red blood cells were present peripherally. Urinalysis was normal. A stool examination revealed no occult blood. Blood nonprotein nitrogen was 42 mg. per 100 cc. The serum bilirubin never rose above 2.9 mg. per 100 cc. Serum amylase was 134 units. There was 38 per cent retention of bromsufalein dye at 45 minutes. Thymol turbidity was negative. Prothrombin was 23 per cent of normal. The serum proteins were 4.6 Gm. per 100 cc., with 2.4 Gm. of albumin and 1.2 Gm. of globulin. Blood cholesterol was 60 mg. per 100 cc. Serum electrolytes (milliequivalents per liter) were sodium 133, potassium 4, and chloride 92.

Course in the hospital: The patient remained essentially afebrile. Abdominal distention was persistent and unrelieved by usual measures. Peristaltic sounds were heard from time to time, and there were occasional spontaneous bowel movements. Abdominal pain was persistent and for the most part vague and diffuse, but worse after paracenteses. Ascites was marked and rapidly reaccumulative after paracenteses. The ascitic fluid was sterile, of low specific gravity, and no abnormal cells were seen on histologic examination of the sediment. After paracentesis 18 days before death, a tender, smooth liver edge was felt 3 fingerbreadths below the right costal margin, and a very tender 7 to 8 cm. epigastric mass, thought to be part of the liver, was palpated. After paracentesis on the day of death, the liver was no longer felt, and the left epigastric mass was thought to be definitely smaller than previously. The spleen was not felt at any time. An initial high protein, high calorie intake was subsequently changed to a low sodium diet, and mercurial diuretics were given. No diuresis was obtained, however. Thrombophlebitis developed in the right leg at the site of a venous cut-down, three days before death. The patient's course was gradually downhill, with a terminal semi-coma lasting several days. Two hours after the last paracentesis, the patient suffered a profound peripheral vascular collapse, from which she failed to recover, despite blood transfusions and other

supportive measures. She expired nine hours after the paracentesis.

Clinical Discussion

DR. KERBY: The most obvious finding in this case was the rapidly re-accumulating ascites in the absence of significant peripheral edema. The subcutaneous edema of the trunk probably resulted from subcutaneous leaking of ascitic fluid from the initial paracentesis wound. The character of the ascitic fluid and the lack of fever and of definite signs of peritoneal irritation make an inflammatory process unlikely. There was no evidence for metastatic tumor with peritoneal implants, although this cannot be ruled out because of failure to find tumor cells in the sedimented fluid. Portal hypertension seems the best probability, despite the lack of demonstrable splenomegaly. We know that the patient had hepatic decompensation eight years previously (jaundice and ascites). The history does not permit us to do more than speculate as to whether this episode represented an acute hepatitis or failure of a liver previously damaged by hepatitis or cirrhosis, and then further damaged by the stress of operation and anesthesia. We can assume, however, from the history, that our patient had previous liver damage as a background for the final illness. Our problem is whether the final illness was primary hepatic failure or whether a chronically damaged liver failed in the face of the superimposed burden of the acute febrile episode which ushered in the final illness. I favor the latter view because of the history of initial cough, fever and generalized aching, all of which responded promptly to antibiotic therapy; while the evidences of hepatic failure developed and progressed.

There are several features which raise the question of some additional factor in the final picture: (1) persistent, severe abdominal pain, worse after paracenteses; (2) persistent marked leukocytosis; and (3) the absence of jaundice as a conspicuous feature.

Neoplasm must be considered. There is no evidence for a primary metastatic tumor. Primary hepatoma is rare but occurs most commonly in cirrhosis, and may give a leukemoid blood picture and abdominal pain. The diffuse character of the pain and the decrease in size of the left epigastric mass are against this diagnosis.

Hepatic venous thrombosis may occur

rarely with cirrhosis, producing abdominal pain, little jaundice, and rapidly recurring ascites. The absence of evident venous collateral circulation is against hepatic venous thrombosis in the present case.

Portal venous thrombosis is a less rare condition than hepatic venous thrombosis and may occur secondary to cirrhosis. Again, jaundice may be inconspicuous, ascites rapidly re-accumulates, and the white cells count may be high. Classically, the patient has abdominal pain, splenomegaly (but in many reported cases demonstrable only on pathologic examination) and hematemesis. There was no hematemesis, but massive bleeding of some other type may have precipitated the final profound peripheral vascular collapse.

In summary, it seems most likely that the patient had chronic liver disease, the etiology not determinable by history, and that there may be evidence of more recent damage as a result of the superimposed burden of the acute febrile illness. It is probable that an additional factor is present, and in order of probability I would list (1) portal venous thrombosis and (2), despite its rarity, primary hepatoma.

In order of probability, the cause of the terminal episode may have been (1) hemorrhage from (a) esophageal varices or (b) trauma related to the final paracentesis; or (2) vascular accident, either (a) pulmonary embolus (known thrombophlebitis of the leg) or (b) mesenteric venous thrombosis secondary to extension from portal venous thrombosis.

Clinical Diagnoses

1. Chronic liver disease with hepatic failure and possibly thrombosis of the portal vein.
2. Shock due to hemorrhage from esophageal varices or from trauma related to paracentesis.

Discussion of Pathologic Findings

DR. OSCAR DUQUE: The most significant findings were in the liver. The organ weighed 17,000 Gm., was irregularly nodular and scarred, with the right and left lobes approximately the same size. The mass felt on palpation during the physical examination was a nodular proliferation of hepatic tissue, 10 cm. in diameter, located to the left of the hilum. The surface of the liver presented numerous small and large yellowish nodules.

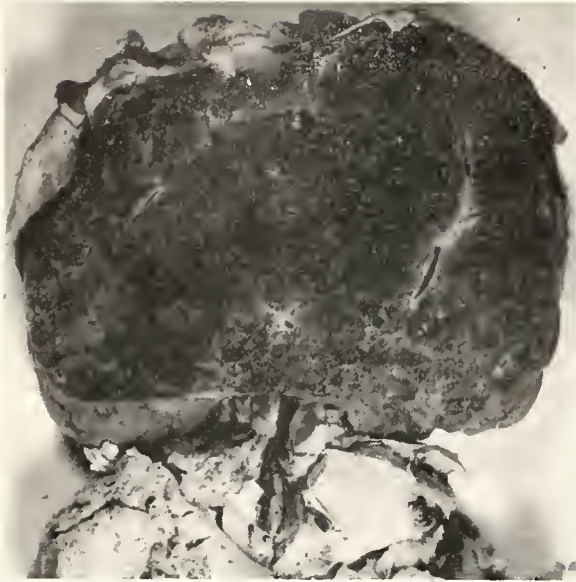


Fig. 1. Gross specimen. Horizontal section of the liver. Note the distorted shape of the organ and the bizarre appearance of the cut surface. Nodular areas of regeneration are prominent. Thrombosis of the portal vein may also be seen.

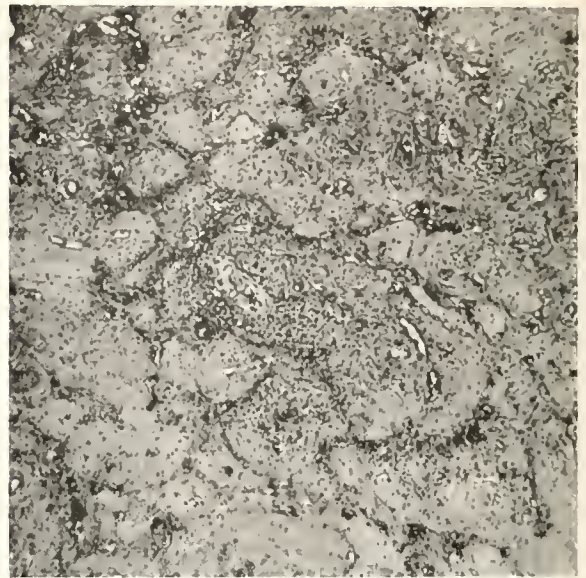


Fig. 2. Photomicrograph of an area of liver showing complete destruction of the parenchyma. The remaining lobular stroma appears demarcated by bile ducts and blood vessels.

The cut surface revealed a complete loss of the normal gross architecture (fig. 1). Bands of connective tissue divided the liver into irregular nodular lobules and areas of dark collapsed parenchyma. The appearance was that of the scarred liver of postnecrotic cirrhosis. There was thrombosis of the portal vein and its intrahepatic branches. In the trunk of the portal vein, the thrombosis was of long standing, since a new channel had formed. Thrombosis of the veins within the liver appeared to be quite recent.

Microscopically, the normal structure of the liver had been replaced by a combination of nodular hyperplasia, fibrosis, and hemorrhage. In large areas, the destruction of liver cells was complete, and the only remnants of hepatic structure appeared as collapsed lobular stroma demarcated by bile ducts and blood vessels (fig. 2). Nodules of regenerating liver cells were scattered throughout the liver. Discrete focal collections of inflammatory cells were also present.

The spleen was enlarged (700 Gm.), congested, and slightly fibrotic. There was a small area of splenic infarction. In the pancreas there were focal discrete areas of pancreatitis with fat necrosis.

To explain the disease process in this patient, one must consider first the nature of the hepatic lesion. The gross and micro-

scopic appearance of the organ was that of the postnecrotic scarred liver that develops following destruction of the hepatic parenchyma by toxic or infectious agents. In the history of this patient there was an episode of jaundice, fever, and abdominal distention lasting from four to five weeks, eight years prior to her death. The anatomic findings in the liver suggest that this episode was an attack of the hepatocellular form of viral hepatitis. On the other hand, the symptoms of that episode may have been related to thrombosis of the portal vein, which in turn could be related to her appendectomy. However, portal thrombosis would have resulted in a different type of hepatic damage. Whatever the nature of the injury, the patient recovered, but her liver was left with a narrow margin of functional efficiency. The final acute liver failure was perhaps brought out by a new thrombosis of the portal system. The cause of this thrombosis is not known. One might attribute it to the slowing of the portal flow within the liver or perhaps to the mild pancreatitis or to both. Postnecrotic fibrosis of the liver is usually accompanied by splenomegaly, ascites, profound alteration of the protein metabolism with decrease in serum albumin, and late jaundice. All these changes were present in this case.

The immediate cause of death was mas-

sive intraperitoneal hemorrhage. During the last paracentesis the trocar had perforated a mass of large omental veins attached to the abdominal wall. Increased pressure in these veins and the bleeding tendency that occurs often in severe liver damage favored a profuse hemorrhage which might not have occurred in the absence of liver disease.

In summary, we have here the unusual case of a patient dying with a nodular post-necrotic fibrosis of the liver, eight years after an episode of jaundice. The degree of liver injury was such that this patient could never have recovered. The hemoperitoneum, following her last paracentesis, only hastened the final fatal outcome.

Anatomic Diagnosis

Severe post-necrotic fibrosis of liver (probably secondary to viral hepatitis). Old and recent thrombosis of portal vein. Chronic passive congestion, fibrosis and infarction of spleen. Adhesions between omentum and anterior abdominal wall. Traumatic rupture of omental veins by trocar (paracentesis). *Massive intraperitoneal hemorrhage.* Jaundice. Ascites.

New Desserts Remove Excess Salt

At the recent convention of the American Medical Association, visiting physicians made thousands of taste tests of cookies into which there had been baked a mixture of unflavored and finely ground sodium-removing resins. The doctors approved the medicated cookies for taste; many believed they compared favorably with grandma's best. Cookies are but one foodstuff into which the housewife may blend this new form of an already established agent which removes excess sodium from the bodies of patients who suffer from heart disease, cirrhosis of the liver, edema of pregnancy, or hypertension. Fruit juices, milk, fudge, cake, and flavored gelatin are some of the other nutriment which will hold and disguise the new medication. Now patients with excessive sodium retention can actually enjoy taking a medicine which allows other items in their diet to be seasoned more liberally and tastefully with once-forbidden salt. Eli Lilly and Company will supply physicians with books of various kitchen-tested recipes which may be given to patients.

Following its debut at the A.M.A. convention, 'Carbo-Resin' (Sodium Removing Resins, Lilly), Unflavored, has been placed on the prescription market.

Among the causes of hearing loss listed by the American Hearing Society are complications following measles, mumps, scarlet fever, chicken pox, whooping cough, meningitis; diseased tonsils; neglected, running ears; wax or foreign objects in ears; swimming in uninspected pools; blows on the ears; frequent colds.

BULLETIN BOARD

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Dr. Guy L. Odom, Duke University neurosurgeon, addressed the Montreal Neurosurgical Society in Montreal, Canada, November 12, on "Intracranial Bleeding of Non-Traumatic Origin." He also led a discussion on fractures of the spine, as well as participating in a neuropathology conference.

Dr. Odom served as visiting lecturer to students at McGill University Medical School, Montreal, November 10-15. With the medical students at McGill he discussed neurosurgical procedures for relief of pain.

Dr. Odom is past vice president of the Southern Neurosurgical Society.

* * *

Twenty Duke University doctors participated in the Southern Medical Association's annual meeting at Miami, Florida, November 10-13.

The Duke Medical School was represented in 11 of the 21 sections of the association, which embraces every phase of medical practice.

Duke physicians who delivered papers or led discussions were Dr. Charles W. Styron, Dr. R. W. Rundles, Dr. William N. Nicholson, Dr. W. B. Barton, Dr. E. Clinton Dexter, Jr., Dr. Julian M. Ruffin, Dr. John V. Kinross-Wright, Dr. Leslie B. Hohman, Dr. George A. Silver, Dr. George J. Race, Dr. J. Lamar Callaway, Dr. O. C. Hansen-Pruss, Dr. Susan C. Dees, Dr. J. Leonard Goldner, Dr. John Glasson, Dr. Walter L. Thomas, Dr. Robert N. Creadick, Dr. Robert L. Alter, Dr. Ralph A. Arnold, and Dr. George J. Baylin.

Among the scientific exhibits was one by Dr. J. E. Markee, chairman of Duke's Anatomy Department, on "The Autonomic Nervous System."

* * *

Dr. Edwin P. Alyea, Duke University urologist, was recently elected president of the North Carolina Urological Association for 1952-53.

Dr. Alyea, in charge of the Duke Urologic Division, succeeds Dr. William Lott of Asheville.

Other new officers are Dr. John Rhodes of Raleigh, vice president; and Dr. Louis C. Roberts of Durham, secretary-treasurer. Dr. Roberts is also a member of the Duke medical staff.

The 50-member Association holds annual scientific and business sessions. The next regular fall meeting will be held at Southern Pines in 1953.

* * *

Dr. Arthur F. Abt, director of the Radioisotope Unit of the new Veterans' Administration Hospital in Durham, has been appointed a professor of pediatrics at Duke University Medical School, Dean W. C. Davison announced recently.

Dr. Abt is one of seven chiefs of services who will conduct the medical program of the new 500-bed hospital which is expected to open in Durham about April 1.

Dr. Abt has been associated with the Radioisotope Unit at Hines, Illinois, since last March and acting chief, Research Division, Research and Education Service, Department of Medicine and Surgery of the VA, Washington, D. C., since July.

A diplomate of the American Board of Pediatrics, he has been a practicing pediatrician since 1926.

* * *

A \$2,000 Easter Seal grant will aid in the expansion of Duke University's speech service to North Carolinians, it was announced recently.

The North Carolina State Society for Crippled

Children and Adults has made the grant to Dr. Leslie B. Hohman, director of the Duke Child Guidance Clinic, for treatment of speech disorders by Dr. Murray M. Halfond, medical speech pathologist at Duke Hospital and at the North Carolina Cerebral Palsy Hospital. The grant will make possible the treatment of speech handicapped children and adults who otherwise could not afford to pay, Dr. Hohman said.

Application for diagnosis of children's speech difficulties will be accepted at the Duke Child Guidance Center. Adults should apply directly to Dr. Halfond, director of Medical Speech Pathology, Duke Hospital.

The new service is part of an expanding program in cooperation with state agencies to reduce the number of North Carolina's speech problems and to develop better treatment methods, Dr. Halfond said.

* * *

Duke University Medical School has just acquired a picture collection of famous physicians and medical scenes for the new Duke Medical Research Building, Dean W. C. Davison announced recently. Purchase of the prized collection has been made available through a grant from the Doris Duke Foundation. The 250 framed steel engravings have been collected over a long period by Dr. J. Calvin Weaver of Atlanta, Georgia, an authority on Georgia medical history.

Duke Medical School Library houses the library of the Georgia Medical Society founded in 1804 at Savannah.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. James C. Andrews, professor and chairman of the Department of Biological Chemistry and Nutrition, has received a grant of nearly \$6,000 from the U. S. Public Health Service to support a program of research on the production of calcium oxalate stones and other stones in kidney and urinary bladder. The frequent occurrence of such stones, often requiring surgical removal, makes this study one of especial interest. This area of the state has often been described as a "stone area" because of the frequency with which such stones occur. The present work, for which the U. S. Public Health Service has offered support, was initiated some years ago at the suggestion of Dr. George L. Carrington of the Alamance General Hospital, Burlington. Dr. Carrington very generously furnished financial support for several years' research in this department. At that time the work was largely concerned with the oxalate content of common foods of this region. This oxalate, from food sources, can contribute materially to the formation of oxalate stones in some individuals. The new grant will enable a continued program of research to be carried on in cooperation with the Memorial Hospital and the School of Dentistry. To the dentist, the formation of "pulp stones" is a matter of considerable interest. Members of the dental faculty are cooperating with Dr. Andrews and his co-workers in a study of possible conditions which might be a cause of both pulp stones and renal stones.

* * *

Mr. Milton Huppert, of the Department of Bacteriology, has received a grant from the Pharmacia Corporation of New York City in the amount of \$1,822 for continuation of studies on a project aimed at developing increased resistance against superficial fungus infection by immunization techniques.

* * *

Dr. Edward C. Curnen, professor of pediatrics, met with the Central Ohio Pediatric Society in Columbus in December and discussed "Major Viruses and Minor Illnesses."

* * *

Dr. Ernest Craige, assistant professor of medicine, addressed the New England Heart Association on "The Relation of the Electrocardiogram to Red Blood Cell Chemical Changes in Diabetic Acidosis" at its annual meeting in Boston. Dr. Louis G. Welt, also of the Department of Medicine, presented papers on "Fluid and Electrolyte Metabolism" and "The Pathogenesis of Dehydration" before the Veterans Administration Teaching Hospital staff in Memphis the latter part of November.

* * *

Dr. K. M. Brinkhous, professor of pathology, attended the second Cold Injury Conference of the Josiah Macy, Jr. Foundation in New York on November 20 and 21. Dr. C. Bruce Taylor, of the Department of Pathology, attended the annual meeting of the American Society for the Study of Arteriosclerosis in Chicago; he read a paper entitled "Factors Affecting the Distribution of Vascular Disease in Hypercholesterolemic Rabbits." Dr. George D. Penick attended the meeting of the Southern Surgical Association and Southeastern Section of the American College of Pathologists in Miami in November.

* * *

Members of the Department of Surgery participated in several meetings and conferences during November: Dr. Nathan A. Womack attended meetings of the Council of the American Surgical Association in Cleveland, the Surgical Committee of the National Research Council in Washington, and the Seaboard Medical Association; at the latter meeting he spoke on "The Relation of Benign Lesions of the Breast to Cancer." Dr. Paul Bunce was also a guest speaker at the Seaboard Medical Association meeting; his topic was "Cancer of the Prostate." Dr. Colin G. Thomas spoke to the U. S. Naval Hospital staff at Camp Lejeune on "Injuries of the Hand."

* * *

Dr. John T. Sessions, of the Department of Medicine, met with the Rocky Mount Academy of Medicine on November 20; he discussed "The Clinical Significance of Some Benign Gastrointestinal Lesions."

PUBLIC RELATIONS CONFERENCE

The sixth annual Public Relations Conference of the State Medical Society was held Wednesday, December 17, at the Sir Walter Hotel in Raleigh.

Speakers for this year's conference were Philip G. Rozelle, Southeastern Director of Public Relations for General Motors Corporation, Atlantic; Robert J. Putnam, Industrial and Community Relations Department, Champion Paper and Fiber Company, Canton; and W. F. DeLoache, Southeastern regional manager, Public Relations Department, E. I. Du Pont de Nemours and Company, Charlotte. Also invited was Thurman Sensing, executive vice president of the Southern States Industrial Council, Nashville.

Attending the conference were state, district, and county society officers, public relations committee members, councilors, and Auxiliary officials.

NORTH CAROLINA MENTAL HYGIENE SOCIETY

"Our Mentally Handicapped Children" was the theme of the Mental Hygiene Institute held in Raleigh on November 14, under the sponsorship of the North Carolina Mental Hygiene Society and the North Carolina Mental Health Council. Dr. David A. Young, superintendent, Hospitals Board of Control, gave a statement of the present situation, and Dr. Roger Howell, professor of mental health of the University of North Carolina School of Public Health, led a discussion on "What Can We Do About It?"

Dr. W. Carson Ryan of the Department of Education, University of North Carolina, was moderator for a panel of speakers composed of psychologists, educators, public welfare workers, psychiatrists and psychiatric case workers, law enforcement officers, and a juvenile court judge.

NORTH CAROLINA ALCOHOLIC REHABILITATION PROGRAM

One of the greatest morale builders offered to the patients at the North Carolina Butner Alcoholic Rehabilitation Center has been the bi-weekly visits of a representative from the North Carolina Employment Service in Durham, who interviews the men with an eye to their proper employment when they leave Butner. It has long been recognized that the sense of inadequacy and anxiety peculiar to the man who cannot find work in keeping with his abilities, or who cannot properly support his family, is often a major contributing factor in the illness of alcoholism. A man working hard, in a congenial atmosphere, at a job he enjoys, with an adequate salary and an appreciative employer, is seldom tempted to drown his worries in drink.

In March of 1951, Mr. S. K. Proctor, executive director of the North Carolina Alcoholic Rehabilitation Program, secured the services of the Durham Employment Office in interviewing the patients, registering them, and forwarding their cards to the areas of their choice. The men also receive information about available jobs, either in their home towns or in other localities, if they desire a change, about unemployment compensation, on-the-job training, and guidance and counsel relative to vocational choice and work attitudes. All employment offices in the state are cooperating in the preparation of the patient to assume financial responsibility upon his discharge from Butner.

According to Director Proctor, during the last two months there has been a change in the Durham Employment Office's services to Butner patients. Because of the demand for such service and the success of the program, Mr. C. B. Sessoms, trained counselor and interviewer, visits the Center every Friday afternoon, thereby getting the opportunity to talk to each patient two or three times during the patient's 28-day stay at Butner. Sessoms' aid was made possible through the efforts of Mrs. Ethel Carr Lipscomb, manager of the Durham Employment Office.

* * *

Horace M. Champion of Raleigh has joined the staff of the North Carolina Alcoholic Rehabilitation Program as public information officer, executive director S. K. Proctor announced recently. Champion, who succeeds Sanford Martin, Jr., in this capacity, will edit the ARP publications, including *Inventory*, North Carolina's bi-monthly journal on alcohol and problems of alcoholism.

NORTH CAROLINA HEART ASSOCIATION

A community service program, sponsored by the Cabarrus County Heart Association, has been established in Cabarrus County. The program functions through a monthly clinic called the Cardiac Rehabilitation Clinic. Patients are seen only by referral from their physicians. The clinic offers services which are ordinarily beyond the scope of the physician-patient relationship, such as: vocational rehabilitation through contact with the State Vocational Rehabilitation office; methods of conserving energy in housework ("Heart of the Home"); dietetic advice by dietitians; qualified recreational outlets through local community recreation commission facilities; and home nursing supervision. In addition, the clinic will consider any other problem for which the physician may wish to send his patient. Not all patients can be benefited, of course, but it is felt that an indefinite number of services can be offered, are offered only if the need exists, and are offered with maximum efficiency of time and money.

* * *

Scientific meetings on cardiovascular subjects, sponsored by the Durham-Orange County Heart Association, are again being held monthly. The November meeting was held on November 11, in the auditorium of North Carolina Memorial Hospital; Dr. Lewis Welt spoke on "Electrolyte Abnormalities in Congestive Heart Failure." The next meeting was on December 9, at 8:00 p. m., at Duke Hospital, when Dr. J. C. Meyers discussed "Shock." Co-chairmen of the Scientific Meetings Committee are Dr. Bernard Holland of Durham and Dr. Carl Gottschalk of Chapel Hill.

* * *

The North Carolina Heart Association's new Committee on Rheumatic Fever held its first meeting on November 23, in Greensboro, to discuss short and long-range programs for exploring and combating the rheumatic fever problem in the state. Dr. E. P. Benbow of Greensboro, chairman of the committee, presided. Twenty-one members of the committee, representing various agencies and groups concerned with the problem, attended the session.

HALIFAX COUNTY MEDICAL SOCIETY

The Halifax County Medical Society held its regular monthly dinner and meeting at the Roanoke Rapids Hospital on November 14. Dr. James F. Donnelly of the Bowman Gray Medical School faculty, Winston-Salem, spoke on "Maternal Mortality."

EDGECOMBE-NASH MEDICAL SOCIETY

Dr. R. A. Ross of the University of North Carolina School of Medicine was speaker at the monthly meeting of the Edgecombe-Nash Medical Society on November 12.

CARTERET COUNTY MEDICAL SOCIETY

The Carteret County Medical Society held its monthly meeting November 10, at the Morehead City Hospital. This was a dinner meeting, the hospital acting as host.

The scientific program consisted of a paper by Dr. William H. Bell, radiologist, for the Morehead City Hospital. Dr. Bell presented a number of interesting x-ray plates showing aneurysm of the aorta, achondroplasia, a benign bone cyst of the humerus, and neurogenic bladder with bladder stones, following traumatic injury to the lumbar spine.

Dr. N. Thomas Ennett, chairman of the Public Relations Committee of the society, discussed the seventh annual National Essay Contest for high school students sponsored by the Association of

American Physicians and Surgeons. At a previous meeting the local society decided to sponsor this contest for the Carteret County high schools.

The subject of this contest is "Why the Private Practice of Medicine Furnishes this Country with the Finest Medical Care." The first prize on the national level is \$1,000.00, and the first prize on the local level is \$25.00. The contest begins January 1, and closes March 1.

Dr. M. B. Morey, president, presided.

N. THOS. ENNETT, M.D.
Corresponding Secretary

MEDICAL DEPARTMENT, ECUSTA PAPER CORPORATION

On December 2 the Medical Department of the Ecusta Paper Corporation, Pisgah Forest, North Carolina, will conduct a meeting for the Regional Chapter of the Society for the Advancement of Management. The theme of the meeting will be "The Value of Medical Maintenance for Industrial Workers."

Dr. Mac Roy Gasque, medical director of Ecusta Paper Corporation, Pisgah Forest, North Carolina, will be the general chairman of the medical part of the program. Others appearing on the program are: William H. Seymour, vice president, Liberty Mutual Insurance Company, Boston, Massachusetts; Dr. Manson Meads, Department of Preventive Medicine, Bowman Gray School of Medicine, Winston-Salem; Dr. H. Charles Ballou, the Greenbrier Clinic, White Sulphur Springs, West Virginia; Dr. Allan J. Fleming, assistant medical director, E. I. du Pont de Nemours & Company, Wilmington, Delaware; Dr. Edward C. Holmblad, managing director, Industrial Medical Association, Chicago, Illinois.

NEWS NOTES

Dr. Julius A. Howell has announced the opening of offices in Winston-Salem for the practice of otorhinolaryngology and maxillofacial surgery.

* * *

Dr. E. W. Larkin, Jr., was certified by the American Board of Ophthalmology following the examination in October.

EMORY UNIVERSITY SCHOOL OF MEDICINE

The Woodruff Memorial building, \$2,000,000 center for medical research in the Southeast, was opened recently at Emory University. The seven-story structure is connected by closed walkways with Emory University hospital, and was made possible by grants from private donors and from the National Cancer Institute.

Emory medical school research in such fields as biochemistry, pathology, anatomy, neurosurgery, thoracic surgery, and use of radioisotopes, will be extended, and scientists from several areas will work together on related projects, according to Dr. R. Hugh Wood, dean of the medical school.

The building was begun in 1950, and has been named for the late Ernest Woodruff, pioneer Southern industrialist, who established the Woodruff Foundation. Funds from this Foundation were contributed to the new research facilities at Emory.

"The new building will serve the Southeast and the entire nation, and will add impetus to the development of Atlanta as a great medical center," said Dean Wood.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

Improving health services of our nation's working force will be the over-all theme of the Annual Congress on Industrial Health, sponsored by the A.M.A.'s Council on Industrial Health. Workers, industrial leaders and medical men will assemble for this thirteenth annual conference January 21-22 at the Drake Hotel, Chicago.

* * *

Today's Health magazine is taking its place with regular textbooks on the college campus. More than 1,300 freshman physical education students at the University of Illinois at Champaign-Urbana are reading the magazine as part of their regular classroom assignment. A special supplementary study sheet called "Classroom Discussion Topics" is being supplied free of charge by the A.M.A.'s Bureau of Health Education as an aid to classroom discussion.

* * *

American Medical Education Foundation state chairmen will kick off the 1953 fund-raising drive with a meeting Sunday, January 25, at the Sheraton Hotel in Chicago. This second annual meeting will launch officially the medical profession's concerted effort during the coming year to raise voluntary funds to assist the country's medical schools. Keynote speaker will be L. D. McGuire, M.D., A.M.E.F. chairman for Nebraska.

* * *

A new pamphlet—"The AMazing Story"—prepared by the American Medical Association, gives the general public a brief summary of the ways in which the A.M.A. serves an average American family. This booklet pictorializes the many ways the Association serves Mr. and Mrs. Joe Typical and family.

* * *

Medical societies which are anticipating displaying health exhibits at local fairs and meetings during the coming year, will be interested in the attractive new exhibit catalogue prepared by the A.M.A.'s Bureau of Exhibits. This booklet carries pictures of 25 different health exhibits, with brief descriptions and such installation data as the minimum space and electrical requirements and shipping weights. All of these exhibits are available on a loan basis from the Bureau. The booklets are being mailed to secretaries of state medical associations for distribution to county societies.

* * *

The 1952 edition of "Apparatus Accepted," a publication of the A.M.A.'s Council on Physical Medicine and Rehabilitation, is now available. The 60-page booklet includes a complete listing of diagnostic and therapeutic devices which have been accepted by the Council. Among other things, the booklet lists such items as audiometers and hearing aids, electrocardiographs, oxygen therapy apparatus, incubators, inhalers and resuscitators, and metabolism testing equipment. Copies may be secured on request through the Council.

* * *

The story of how local medical societies bring medical care and medical services to more and more American people is the subject of a new exhibit which is nearing completion by the A.M.A.'s Bureau of Exhibits. "You and Your Medical Care" exhibit features emergency call services, voluntary health insurance, early detection and prevention of such diseases as cancer and TB, community health councils, grievance committees, and sources of health education information.

A separate unit has been designed for each subject, making the exhibit suitable for showings in every community . . . any portion of the exhibit

may be omitted if a state or county society has not yet developed a program on a certain subject. The exhibit will be available shortly after the first of the year.

* * *

More and more Americans will have an opportunity to see the RKO-Pathe film, "Your Doctor," during 1953. An estimated 12 million persons viewed the 15-minute movie-short in more than 2,000 commercial theaters across the nation in 1952.

After January 1, 16 mm. prints of the film will be available for showings to schools, service clubs, civic groups, industrial plants and special professional meetings. Produced by Louis de Rochemont in cooperation with the A.M.A., this film portrays the work of 35 year old Dr. George Bond in his valley clinic in North Carolina.

The American Medical Association also has made arrangements to obtain prints for state and county society film libraries. Societies interested in purchasing a print at cost may write to the A.M.A. Public Relations Department. Details on distribution methods will be made available later.

* * *

"Health for Today," an authoritative health column by Dr. W. W. Bauer, director of the A.M.A.'s Bureau of Health Education, will be syndicated six days a week from coast-to-coast through King Features Syndicate. The first article will appear January 5, 1953. In his column, Dr. Bauer will discuss mainly health subjects rather than disease. He has received authorization from the Board of Trustees.

AMERICAN COLLEGE OF SURGEONS

An impressive program of symposiums, panel discussions, clinical conferences, and medical motion pictures on practical surgical problems will open the 1953 season of Sectional Meetings of the American College of Surgeons at The Netherlands Plaza Hotel in Cincinnati, Ohio, January 19-21. This meeting is the first of eight scheduled for various parts of North and South America during the coming year.

Other sectional meetings will be held this year in Atlanta, Georgia, February 23-24; Boston, Massachusetts, March 2-5; Salt Lake City, Utah, March 20-21; Oklahoma City, Oklahoma, March 24-25; Los Angeles, California, March 30-31; Calgary, Alberta, April 23-24. The first Inter-American Session will be held in Sao Paulo, Brazil, February 9-12.

* * *

Ceremonies marking the end of a 35-year period in which the American College of Surgeons held sole responsibility for setting standards for the nation's hospitals will be held Saturday, December 6, when the plan will be transferred to the new Joint Commission on Accreditation of Hospitals in a program at the John B. Murphy Auditorium, Chicago, at 4 p.m.

Principal speaker will be Senator Lister B. Hill of Alabama, co-sponsor of the Hill-Burton Act, instrumental in constructing over 1,000 hospitals, especially in rural communities. Dr. Everts A. Graham, chairman of the Board of Regents of the College, will turn the new program over to Dr. Gunnar Gundersen, first chairman of the Commission.

From now on the American College of Physicians, American College of Surgeons, American Hospital Association, American Medical Association, and Canadian Medical Association will share responsibilities of the program. Proposal for the formation of the commission was initiated by the College in the recognition that not only surgeons but other members of organizations concerned with medical care in hospitals should participate in the establishment and enforcement of hospital standards. This

combination of organizations constitutes an important milestone in the development of health services for the American people.

AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY

The eleventh annual meeting of the American Academy of Dermatology and Syphilology was held December 6-11 in the Palmer House, Chicago.

In addition to the many papers presented, there were several symposiums and panel discussions. Officers of the Academy this year are: Dr. C. Guy Lane, Boston, president; Dr. Michael H. Ebert, Chicago, vice president; Dr. John E. Rauschkolb, Cleveland, secretary-treasurer; and Dr. James R. Webster, Chicago, assistant secretary-treasurer.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

Appointment of three new members to the professional staff of the National Society for Crippled Children and Adults includes Fletcher C. Kettle as director of organization and administration, Donald C. Morris as managing editor of publications, and Mrs. Lydia Newton as program consultant.

Kettle, who will supervise the business management of the nationwide Easter Seal Society, formerly served for six years as president of Larry Burns Motors, Inc., Chicago. Prior to this he was deputy director of the Division of Displaced Persons of the United Nations Relief and Rehabilitation in London, England, and was chief liaison officer with General Eisenhower's headquarters.

Morris will serve as managing editor of the Crippled Child Magazine and Bulletin, official publications of the Easter Seal Society. He comes to the National Society from the University of Chicago, where he was editor of the University of Chicago Magazine, which, under his editorship last summer, received the national Magazine-of-the-Year award of the American Alumni Council.

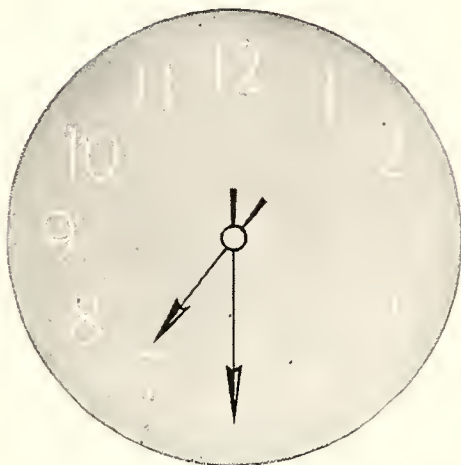
Mrs. Newton's duties will involve working with the more than 2,000 state and local Easter Seal societies throughout the nation in extending treatment and care for crippled children. A graduate of Northwestern University, she was formerly director of the speech and hearing program for the Arizona Society for Crippled Children and Adults in Phoenix.

AMERICAN DIABETES ASSOCIATION

The first postgraduate course in diabetes and basic metabolic problems to be conducted by the American Diabetes Association will be offered under the direction of Dr. Charles H. Best, director of the Banting and Best Department of Medical Research of the University of Toronto, on January 19, 20, 21, 1953, at the University of Toronto, Canada.

Developed by the Association's Committee on Postgraduate Education, under the chairmanship of Dr. Edward L. Bortz, the course will have as its clinical director, Ray F. Farquharson, M.B., professor of medicine of the University of Toronto, and Andrew L. Chute, M.D., professor of pediatrics of the University of Toronto, will act as associate clinical director.

Over thirty lectures and round-table discussions have been planned. The course is open to non-member physicians as well as members of the American Diabetes Association, but the number of registrants will be limited to 100. Fees are \$20 to members, \$40 to non-members. Details of the three-day program and registration and hotel information may be obtained from J. Richard Connelly, Executive Director, American Diabetes Association, 11 West 42nd Street, New York 36, N. Y.



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BOOK REVIEWS

Cardiac Therapy. By Harold J. Stewart, M.D., Associate Professor of Medicine, Cornell University Medical College; Attending Physician, New York Hospital; Head of Division of Cardiology, Department of Medicine, New York Hospital-Cornell Medical Center. 622 pages. Price, \$10.00. New York: Paul B. Hoeber, Inc., 1952.

In this book Dr. Stewart gives his readers the benefit of a professional lifetime of experience in treating diseases of the heart and in teaching successive generations of students. It is one of the most comprehensive books on cardiac therapy yet published, and is one of the best. It is well written, practical, and gives in detail the author's methods of treating all the known ills the heart is heir to. It can be heartily recommended to internists and general practitioners who want to know the last word in cardiac therapy.

One of the best, if not the best, chapters in the book is chapter 32—"What to Tell Patients About Their Heart Disease."

About the only criticism this reviewer would offer is that Dr. Stewart follows the time-honored custom of prescribing morphine for the relief of pain in myocardial infarction. The impression is left that this is by all odds the drug of choice. Since morphine nauseates most people and since the nausea and attendant vomiting may prove dangerous or even fatal, there seems little excuse nowadays for not substituting Demerol, Dilaudid, or methadone, which are effective pain-relievers and much more easily tolerated. This minor criticism, however, is not intended to detract from the value of the book as a whole.

Cardiography in General Practice. Electrocardiography, Vectorcardiography and Ballistocardiography. By Abraham I. Schaffer, M.D., Assistant Visiting Physician, Metropolitan City Hospital, New York. 13 pages. Price, \$3.00. Baltimore, Maryland: The Williams and Wilkins Company, 1952.

According to its title, this text is proposed for the use of the general practitioner of medicine.

The section covering electrocardiography might be of some value to one with some training in this field. However, the portions of the work dealing with vectorcardiography and ballistocardiography are far beyond the reach of all general practitioners and the majority of those who are already trained in the ordinary use of the electrocardiograph.

Furthermore, the uses of these methods have been presented as the "final court of appeal" in many cases of cardiovascular disease. Any internist recognizes the value of the electrocardiograph but puts greater faith in a well taken history and careful physical examination.

The statement is made that leads V-2 and V-5, along with the conventional limb leads, are "sufficient for screening purposes." However, it is well known that the American Heart Association's standard screening chest position is CF-4.

For the foregoing reasons, this text is far from ideal for the general practitioner.

Correlative Neuroanatomy and Functional Neurology. By Joseph J. McDonald, M.D., and Joseph G. Chusid, M.D. Ed. 6. 261 pages. Price, \$4.00. Los Altos, California: Lange Medical Publications, 1952.

This concise volume, in outline form, presents in a simple manner the essential features of the

anatomy and physiology of the nervous system and relates these aspects of the subject to the field of clinical neurology.

Although this book is designed for the beginner in neurology, it should be of value to medical students, postgraduate students and physicians, either in general practice or in various specialties, who desire a review of the subject of neurology and all its branches. Although it does not replace the standard textbooks of neuroanatomy, neurophysiology, neuropathology, or neurology, it may serve as a handy reference to the busy student or physician.

The first two sections of the book are devoted to the central and peripheral nervous system respectively. The third section is devoted to the principles of neurodiagnosis. This section includes a useful guide to neurologic examinations, including a precise outline of neurologic signs and symptoms.

Brain Surgeon. The Autobiography of Dr. William Sharpe. 271 pages. Price, \$3.75. New York: The Viking Press, 1952.

This is a rather dramatic attempt on the part of the author to portray his life to the public and to put forth certain theories the author has regarding the prevention and treatment of cerebral palsy and the treatment of hydrocephalus. His theories are so many years behind the newer advances in neurophysiology and neuropathology that this book will scarcely raise any comment from those interested in the field of neurology in this regard. The author grew up in a period when neurosurgeons were few and far between, and could have achieved great fame in the field of neurosurgery alone. He is, however, hardly known by the younger generation of neurosurgeons.

There are quite a few interesting anecdotes written along the line of consultation room stories giving the author's point of view toward many of the great men of his earlier years. This book will make an interesting evening of reading for those who desire to learn more about the author but will not leave the lasting impression of Dr. John Fulton's biography of Harvey Cushing.

Nutrition and Diet in Health and Disease. By James S. McLester, M.D., Professor of Medicine Emeritus, University of Alabama; and William J. Darby, M.D., Ph.D., Professor of Biochemistry and Director of the Division of Nutrition, Vanderbilt University. Ed. 6. 710 pages. Price, \$10.00. Philadelphia and London: W. B. Saunders Company, 1952.

The sixth edition of this outstanding book represents an extension, revision, and amplification of the previous volume. Biochemical diagnostic measures to re-evaluate requirements have been utilized to bring up to date the data on food composition.

Approximately one third of the book concerns itself with diet and food factors, and an analysis and physiologic evaluation of major food products, vitamins, and minerals. Special consideration is given to infant-feeding and diet during pregnancy and lactation.

The remaining two thirds of the book discuss the application of diet, not only to the production of disease, but in the management of dietary, metabolic, infectious, and degenerative disorders. Topics of current interest include diets for hypertension, renal disease, and functional and organic digestive disturbances, as well as problems presented by patients pre- and post-operatively.

The comprehensive nature of the material offered in this single volume, in consideration of the tremendous expansion of the subject since the fifth edition, would not have been possible without the critical selectivity evident in the authors' work.

This book remains one of the most valuable contributions in a field which touches every aspect of medicine. It is highly recommended to all students and practitioners of medicine.

Standard Values in Blood: Being the first fascicle of a Handbook of Biological Data. Prepared under the direction of the Committee on the Handbook of Biological Data, American Institute of Biological Sciences, The National Research Council. Edited by Errett C. Albritton, M.D., Fry Professor of Physiology, George Washington University. Ed. 6. 199 pages. Price, \$4.50. Philadelphia and London: W. B. Saunders Company, 1952.

This is an enormously detailed compilation of data on blood, the work of over 600 people, and is the first fascicle of a handbook of biological data. It is almost Teutonic in scope and conception. The material is discussed under the following headings: physical properties, coagulation phenomena, blood groups, erythrocytes and hemoglobin, leukocytes, blood and bone marrow cells, water, carbohydrate, lipid, protein, amino acids, non-protein nitrogen, phosphorus, sulfur, vitamins, hormones, enzymes, electrolytes, minerals, gases, acid-base, effects of radiation, storage, therapeutic agents. There is a bibliography and index. The format is photo-offset, and the cover is composition.

To review this work adequately would require the efforts of a panel such as the one which produced it. Really, one can only announce it. In scanning the sections which deal with the reviewer's field of interest, he finds surprising omissions in such a welter of data. In the section on the bone marrow there is no information on the degree of cellularity of the marrow at different ages, as seen in sections. This information has been available for 20 years, and appears in standard reference works such as Wintrobe's text and Custer's Atlas. The latter work, although in extensive use in this country, does not appear in the bibliography. If this is any indication of the state of affairs elsewhere, it may be that even this great compilation is incomplete. Nonetheless, the information assembled here is of great value, and will save many people hours of paging through various publications.

Culdoscopy: A New Technic in Gynecologic and Obstetric Diagnosis. By Albert Decker, M.D., F.A.C.S., Clinical Professor of Gynecology and Obstetrics, New York Polyclinic Medical School and Hospital. 148 pages, with 50 figures. Price, \$3.50. Philadelphia and London: W. B. Saunders Company, 1952.

For the occasional gynecologic or obstetric problem when direct visualization of the pelvic viscera may be required for accurate diagnosis, the relatively simple approach through the cul-de-sac employing a suitable telescopic instrument may replace a more hazardous laparotomy.

The author introduced celioscopy by the vaginal route (culdoscopy) and improved the technique by placing the unanesthetized subject in the knee-chest position and developed a suitable instrument (the Decker culdoscope) for this approach.

In this monograph the author describes his technique and reviews his experience over the past seven years. Culdoscopy aids primarily in the diagnosis of ectopic pregnancy, endometriosis, ill-defined pelvic masses, and infertility. The complications of culdoscopy are few; contraindications are infrequent. This complete guide will be welcomed by interested gynecologists and surgeons.

For Boys Only. By Frank Howard Richardson, M.D. 91 pages. Price, \$2.75. Atlanta, Georgia: Tupper and Love, Inc., 1952.

This reviewer has read many books discussing the question of sex and advising the older generation how to tell the facts of life to the younger generation. The best one that he has yet seen for adolescent boys and their parents is the one by Frank Howard Richardson. Dr. Richardson is a pediatrician who has learned a good deal about children the hard way—by dealing with four of his own, three sons and one daughter.

The book discusses in simple, everyday terms and in conversational style virtually all of the so-called "facts of life" that teen-age boys need to know. While written, as the name implies, for boys only, it could be read with profit by the parents of adolescent boys. It is a book which can safely be recommended for placing in the hands of any intelligent teen-age boy.

In Memoriam

JAMES GILLIAM JOHNSTON, M.D.
(1872—1952)

With the passing of Dr. James G. Johnston to richer fields of service and to a greater reward, this Society of his fellow members is deeply conscious of the loss of a worthy colleague, and a true and amiable friend.

He was possessed of a fine mind which gave him the capacity to think clearly and to arrive at logical conclusions. Because of his modesty he never put these faculties on display except to his most intimate confreres. He had a quiet, keen sense of humor, and a demeanor which never seemed to be disturbed even under the most trying circumstances. He was a man and a physician of the highest integrity and ethical principles, and a Christian gentleman. No one could ever say of him that he ever made a derogatory statement about any man. His willing and untiring efforts to help his fellow man, his faith and belief, and love of human kind, and the Christian spirit through which he conducted every phase of his daily life will serve as a living monument to him which all of us should be mindful of and should strive to emulate.

"For when The One Great Scorer
comes to write your name;
He writes—Not that you won or lost,
but how you played the game."

James Gilliam Johnston's creed of living was conducted according to those concepts. His attainments and accomplishments as a physician, a civic leader, and a churchman need not be recorded here. They are indelibly written in the record of his life, and will always remain fresh in the memories of his colleagues, his patients and his friends.

We, his brother physicians and all others who knew him, will miss his wise counsel, and gentle guiding hand.

Be It Resolved: That The Mecklenburg County Medical Society record its feelings of high tribute to him as a physician, confrere, and friend, and our deepest sympathy to his bereaved family and,

Be It Further Resolved: That a copy of these resolutions be included in the permanent records of this Society, and a copy be sent to his family and to the North Carolina Medical Journal.

H. C. NEBLETT, M.D., Chairman
J. LESTER RANSON, Sr., M.D.
L. W. HOVIS, M.D.

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KEY TO ABBREVIATIONS

C—Correspondence
C&O—Committees and Organizations
CPC—Clinocopathologic Conference

PM—President's Message
PR—Public Relations

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